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ABSTRACT

A primary purpose of the study was to assess effects of an 18-week elementary school curriculum, organized around career education clusters, on student understanding of selected career education concepts. Another objective was to ascertain teacher benefits from a workshop emphasizing the cluster concept. Two experimental groups and a control group were used in the study which involved 150 fourth graders, 150 fifth graders, and 20 elementary teachers from three Independence, Missouri schools. Experimental group A was taught by teachers who had experienced an intensive career education workshop including involvement in curriculum/unit development, while experimental group B was taught by teachers attending a less intensive workshop. Pre- and posttesting consisted of administration of the Orientation to Career Concepts, How I See Myself, Self Appraisal Inventory, and Everyday Decision Making test instruments, Achievement scores in the experimental groups were significantly higher on selected career awareness and self-awareness concepts. Moreover, scores of students, taught by teachers using self-developed units, were significantly higher on selected career awareness concepts (two out of seven cases). No significant difference was indicated for selected career decision making skills. Approximately 150 pages of the document are appendixes of workshop activities, tests, supportive data, and a related literature/research summary. (EA)

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FINAL REPORT

IN-SERVICE EDUCATION MODEL FOR THE DISSEMINATION AND UTILIZATION OF SELECTED CAREER EDUCATION CONCEPTS PRESENTED BY THE CAREER CLUSTER APPROACH IN THE ELEMENTARY SCHOOL

(Project No. 1115)

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INTRODUCTION

Introductory Statement

An important responsibility of a classroom teacher is to structure learning activities in such a way that pupils will learn, retain, and be able to use in other situations, that which they have learned in school. It is the responsibility of the school to stimulate learning through processes which are meaningful, insightful, or problem-solving in character, because this kind of learning behavior is essentially valuable for children in our society.[1] If this continues to be one of the goals of education, then consideration must surely be given to the concept of career education which calls for a relevant educational experience for all children. It was Miller who stated that career education provides a highly relevant organizational theme around which all of education can be unified. With this infusion of relevance, education not only takes on new and exciting meaning for the learner, but also prepares him for rational decisions which will help make his economic life role one of personal choice, rather than chance.[2]

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[1] Lester G. Anderson and Arthur J. Gates, "The General Nature of Learning," Learning and Instruction, Forty-Ninth Yearbook of the National Society for the Study of Education (Chicago: University of Chicago Press, 1950), p. 26.

[2] Aaron J. Miller, "Career Education Tenets," (paper presented at the Sixth Annual National Vocational and Technical Teacher Education Seminar, October, 1972, Columbus, Ohio).

The history of education reflects that our society has yet to accept the fact that a comprehensive school program organized around a career awareness theme would be a worthy educational goal. The high dropout rate, the drug problem, the rapidly rising rate of welfare cases, and the rise in community crime coupled with material waste, pollution, unemployment, underemployment and unhappy employment all attest to the deficiencies of our existing educational system. These problems are bringing us to a fast realization that there is something fundamentally wrong with the way in which youth move from school to work and it is felt that a career oriented curriculum can, in part, help youth bridge this gap.

In many ways, though, the problems of American education are the problems of success. No nation in history has ever approached such a massive investment in the education of its people, an investment which has multipled from six billion to sixty-five billion dollars in just 25 years. Three-quarters of America's youth complete high school; over half of them go on to college, and about one-fifth of all United States young people graduate from college. But these high levels of education make the competition tougher for those who don't have it. And those who do gain an education, are often frustrated because they don't know what to do with it. From the turn of the century when 80 percent of high school graduates went to college because high schools were exclusively preparatory schools for colleges, to now when high school is mass education, the signals have never changed. Schools continue to track students into the college preparatory, vocational education, and general education curriculum. Far more are in the college preparatory track than will complete it, even though it is estimated that 85 percent of the jobs in the next two decades will require less than a four year degree for entry level competency. To state it clearly, the school system is in trouble, not because it has educated so many but because it has prepared so few. A career education program, starting in the kindergarten and continuing beyond formal education, would hopefully provide a more comprehensive educational structure that is responsive to the needs of society.

Statement of the Problem

The value of organizing the elementary school curriculum around career education clusters rather than infusing the concepts of career education into the traditional elementary school curriculum has not been established through experimental procedures. At the time of this writing, the writer could find little research evidence available relative to the effects of different methods of presenting the concepts of career education to elementary school students.

This study was intended to provide evidence related to the value of organizing the elementary school curriculum around career education clusters. More specifically, the situational problem which became the focal point of the study is revealed in the following question: What effect will an elementary school curriculum organized around the cluster concept of career education have upon student achievement of selected career education concepts when contrasted with the achievement of those same concepts by students in the traditional elementary school structure? A second problem which is also a focal point of the study is revealed in the following question: To what extent will the three-week teacher orientation (Method A) as contrasted with the three-hour teacher orientation (Method B) to the career education cluster concept affect student achievement of selected career education concepts?

Purpose of the Study

The primary purpose of this investigation was to ascertain the relative effect that an elementary school curriculum organized around career education clusters will have upon student achievement of selected career education concepts. More specifically, the study attempted to provide answers to the following questions:

1. Do students who experience an elementary school curriculum organized around the career education cluster concept achieve selected career awareness concepts of career education at a significantly

higher level than do those students who experience the traditional elementary school curriculum?

2. Do students who experience an elementary school curriculum organized around the career education cluster concept achieve selected self awareness concepts of career education at a significantly higher level than do those students who experience the traditional elementary school curriculum?
3. Do students who experience an elementary school curriculum organized around the career education cluster concept achieve selected career decision making skill concepts of career education at a significantly higher level than do those students who experience the traditional elementary school curriculum?
4. Does the length of teacher orientation to the cluster concept of career education have a significant effect on student achievement of selected career education concepts?

Of secondary importance to the study was an attempt to provide an answer to the following question:

5. Do teachers who experience an in-service career education workshop organized around the career education cluster concept achieve selected career awareness concepts of career education at a significantly higher level on a post-test than on a pre-test?

Statement of Hypotheses

The primary research hypothesis of this study was that fourth and fifth grade students taught by teachers who:

(1) received a three-week orientation to the cluster concept of career education, wrote curricular units of instruction based on the career cluster concept, and taught these cluster oriented career curricular units, will have a significantly higher level of selected career awareness, self awareness, and career decision making skill concepts than those students who do not experience this approach.

(2) received a three-hour orientation to the cluster concept of career education, did not write curricular units of instruction based on the career cluster concept, but taught the cluster oriented career curricular units prepared by their colleagues, will have a significantly higher level of selected career awareness, self awareness, and career decision making skill concepts than those students who do not experience this approach.

A secondary research hypothesis of this study was that teachers who receive a three-week orientation to the cluster concept of career education will have a significantly higher level of achievement on the career awareness concept of career education on a post-test than on a pre-test.

Stated in the null form for purposes of statistical treatment, the following primary hypotheses were tested:

Ho_1: No significant differences in student achievement of the total career awareness concept exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_2: No significant difference in student achievement of the total career awareness concept exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_3: No significant differences in student achievement of the work awareness concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_4: No significant difference in student achievement of the work awareness concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_5: No significant differences in student achievement of the worker activities concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_6: No significant difference in student achievement of the worker activities concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_7: No significant differences in student achievement of the vocational vocabulary concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_8: No significant difference in student achievement of the vocational vocabulary concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_9: No significant differences in student achievement of the occupational picture absurdities concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{10}: No significant difference in student achievement of the occupational picture absurdities concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{11}: No significant differences in student achievement of the occupational picture similarities concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{12}: No significant difference in student achievement of the occupational picture similarities concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{13}: No significant differences in student achievement of the occupational tools concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{14}: No significant difference in student achievement of the occupational tools concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{15}: No significant differences in student achievement of the work stories concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{16}: No significant difference in student achievement of the work stories concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{17}: No significant differences in student achievement of the working conditions concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{18}: No significant difference in student achievement of the working conditions concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{19}: No significant differences in student achievement of the occupational training concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{20}: No significant difference in student achievement of the occupational training concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{21}: No significant differences in student achievement of the workers' earnings concept of career awareness exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{22}: No significant difference in student achievement of the workers' earnings concept of career awareness exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{23}: No significant differences in student achievement of the total self awareness concept as measured by the How I See Myself Inventory exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{24}: No significant difference in student achievement of the total self awareness concept as measured by the How I See Myself Inventory exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{25}: No significant differences in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{26}: No significant difference in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

Ho_{27}: No significant differences in student achievement of the career decision making concept exist among the groups of students receiving instruction by Treatments A, B, and C.

Ho_{28}: No significant difference in student achievement of the career decision making concept exists between students receiving instruction by Treatments A and C; by Treatments B and C; by Treatments A and B.

The following secondary hypothesis was also tested:

Ho_{29}: No significant differences in teacher achievement of selected career awareness concepts exist among teacher pre-test and post-test scores.

Assumptions of the Study

Due to the nature of the investigation, the study was initiated upon the following assumptions:

1. That the sample of elementary school teachers participating in the study was representative of elementary teachers in:
    (a) the participating school district
    (b) similar suburban metropolitan areas
2. That the sample of elementary school students who participated in the study was representative of elementary school students in:
    (a) the participating school district
    (b) similar suburban metropolitan areas
3. That the sample of elementary schools participating in the study was representative of elementary schools in:
    (a) the participating school district
    (b) similar suburban metropolitan areas
4. That the measures used in the study provided valid and reliable data.

It was further assumed that any differences that exist were due to results of the different methods employed and that these differences were reflected in student achievement and teacher achievement.

Limitations of the Study

The study was limited to the three elementary schools of the Fort Osage Public School District R-1, Independence, Missouri, which had multiple sections of grades four and five. Ten fourth-grade teachers and ten fifth-grade teachers were involved in the study: three fourth- and three fifth-grade teachers used the experimental approach (Method A) to teach selected career education concepts; four fourth- and four fifth-grade teachers used the experimental approach (Method B) to teach selected career education concepts; and three fourth- and three fifth-grade teachers used the traditional approach (Method C).

The study was purposely limited to determining the relative effectiveness of three approaches to teaching selected career education concepts and was not intended to measure the effectiveness of other methods, materials, or activities which normally add to or detract from the teaching-learning situation.

The validity and reliability of the measuring instruments used posed still another limitation since only normative data was available on two of the instruments. All efforts were made to control for potential threats to both validity and reliability. It was assumed that any differences would have had equal opportunity to occur in all treatment groups.

PLAN AND ORGANIZATION OF THE EXPERIMENT

General Features of the Experiment

This study was conducted as an experimental comparison of methods used to teach fourth and fifth grade students selected career education concepts. The study consisted of two experimental treatments (Methods A and B) and a conventional treatment (Method C). The study was conducted during the first semester of the 1973-74 school year in three elementary schools of the Fort Osage Public School District R-1, Independence, Missouri.

The three-way analysis of variance was the principle statistical technique used to ascertain the relative effectiveness of the three treatments. Criterion tests to ascertain student achievement of the selected career education concepts were administered at the end of the treatment.

In experimental research the experimental factor (independent variable) is the variable that is manipulated by the experimenter. In this study the method of teaching selected career education concepts was the experimental factor.

Insofar as possible, all other factors were controlled or held constant in an effort to ascertain the relative effect of the treatments upon student achievement of selected career education concepts.

Control Variables

In experimental research it is desirable to control all factors except the one independent variable, thereby allowing the uncontrolled experimental factor full opportunity to exert itself. This was not easy to achieve as some factors evade identification while others are difficult to control after they are identified. This study was designed to hold constant, insofar as possible, the following factors by making them the same for all groups:

1. Self-contained classroom organization
2. Grade levels
3. Length of school day
4. Total number of weeks spent on the project
5. Time interval between criterion measures
6. Pre-tests
7. Post-tests

Other factors which were beyond the control of the investigator were either minimized through the design of the experiment or were assumed to operate equally among all groups.

Treatment Variables

Since the experimental factor involved in this investigation was the method employed in teaching selected career education concepts, all fourth and fifth grade teachers participating in the experimental approaches of the study taught from the guide that had been developed for their grade level. The uniqueness of this research study lies in the fact that each approach will yield statistical data relative to the effectiveness of a particular method of presenting the concepts of career education to elementary school children.

Experimental Approach (Method A). The teachers who presented selected career education concepts by this approach attended a three-week workshop designed to give them an orientation to the cluster concept of career education. A daily schedule of workshop activities is provided in the Appendix.[1] The teachers received three semester hours of graduate level credit for attending the workshop. These same teachers then wrote curriculum for three weeks based on the cluster concept of career education. Each of the six elementary school teachers developed five career clusters for a total of 30 clusters, 15 for each of the two grade levels. The titles of the clusters, time spent in presenting each cluster, and the dates of presentation are provided in the Appendix.[2] The teachers received three semester hours of graduate level credit for writing the units around the cluster concept. These cluster-oriented career units were then taught by the same teachers during the first semester of the 1973-74 school year.

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[1] See Appendix A

[2] See Appendix B

Experimental Approach (Method B). The teachers who presented selected career education concepts by this approach attended one three-hour session designed to give them an orientation to the cluster concept of career education. These same teachers were then asked to teach the cluster-oriented career units, which had been written by their colleagues, during the first semester of the 1973-74 school year.

Traditional Approach (Method C). The teachers who presented content by this approach were encouraged to teach the concepts of career education during the first semester of the 1973-74 school year but were given no assistance in securing career-oriented materials nor were they given access to the cluster-oriented career units which had been written by their colleagues.

Selection of School District

Although there has been little experimental research conducted in the area of career education, a majority of that which has been undertaken has been conducted in large urban areas. Little research, if any, has been conducted in suburban metropolitan areas where a very large cross-section of our population lives. The theory of selecting a suburban metropolitan school district was to expose students from a rural as well as an urban background to the concepts of career education, thus allowing students to interact with a wider range of careers. Fort Osage Public School District R-1, Independence, Missouri, met this criteria and was the writer's first choice in selecting a school district. The school district is located in eastern Jackson County just 20 minutes from Kansas City, the thirteenth largest city in the nation. The district has an estimated population of 20,000 people and it is one of the fastest growing school districts in the state. The total school enrollment has doubled in the past seven years, and it is projected that the district will serve 6,000 students by 1975.

The writer first met with the Fort Osage Superintendent of Schools and presented the proposed research project to him. After minor modifications, the superintendent gave his endorsement to the proposal and presented it to the Board of Education. A copy of the letter received from the Superintendent of Schools indicating the Board of Education's approval of the project is provided in the Appendix.[3]

Selection of Experimental and Control Schools

The design of the research project necessitated the selection of elementary school buildings which housed multiple sections of elementary grades four and five. Of the six elementary schools operated by the district, only three offered multiple sections of the two grade levels; therefore, all three schools were included in the study. Treatments A, B, and C were randomly assigned to the elementary school buildings.

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[3] See Appendix C

Selection of Grade Levels

A review of the instruments available to assess selected career education concepts reveals that a majority of the instruments were designed to be utilized with grades 4-6. With this in mind, the writer consulted with the principals of the three elementary schools concerning this matter. They recommended that grades four and five be involved in the study due to the plans of two sixth grade teachers to either return to graduate school or travel during the summer months. This would not allow them to attend and participate in the two workshops; therefore, grade levels four and five were selected for utilization in the experiment.

Selection of Experimental and Control Teachers

The four fourth- and four fifth-grade school teachers who were housed in the building to which Treatment A had been randomly assigned were called together for a special meeting near the close of school during the spring of 1973. The writer gave a brief description of the project and then asked for an indication of those who would be interested in participating in such a project. Three fourth- and three fifth-grade teachers gave their commitment to participate in the project. One of the two teachers who did not agree to participate had signed a contract with another school district for the next year, while the other teacher already had a summer job commitment.

The four fourth- and four fifth-grade school teachers who were housed in the building to which Treatment B had been randomly assigned were called together for a special meeting during teacher plan days in the fall of 1973. The writer gave a two-hour presentation over the cluster concept of career education which was followed by much discussion. The writer then asked for three volunteers at each of the two grade levels. All eight of the teachers indicated that they desired to participate in the research project and this request was granted.

The three fourth- and three fifth-grade teachers housed in the building to which Treatment C had been randomly assigned were called together for very short individual conferences. They were asked to participate in the study by allowing the researcher to administer a series of measures to students. All six of the teachers gave their consent to participate in the testing phase of the project.

Selection of Curricular Content

The curricular content presented to the fourth and fifth grade classes during the first semester of the 1973-74 school year was developed around the career cluster concept. The major problem faced by the researcher and the fourth and fifth grade teachers who wrote the curriculum was that of identifying careers which would be representative of those in the surrounding rural, suburban and urban areas by cluster. The following steps were utilized by the researcher and the teachers in an effort to systematically identify and utilize careers which would be representative of those in the surrounding geographic area.

1. In an effort to group the 21,000 occupations listed in the *Dictionary of Occupational Titles*[4] by clusters, a publication entitled, *Career Clusters: An Organizational Technique to Facilitate the Delivery of Career Education*,[5] was used. This latter publication classifies occupations by cluster which proved helpful in identifying occupations by cluster.
2. The next step was to delineate the list of 21,000 occupations by cluster so as to describe only those occupations which cut across several job families within and between career clusters. The *Occupational Outlook Handbook*,[6] was used for this purpose. This publication was very helpful

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[4] U. S. Department of Labor, *Dictionary of Occupational Titles*, 2 vols, (3rd ed.; Washington: Government Printing Office, 1965).

[5] U. S. Office of Education, *Career Clusters: An Organizational Technique to Facilitate the Delivery of Career Education* (Washington: Government Printing Office, 1972).

[6] U. S. Department of Labor, *Occupational Outlook Handbook*, Bulletin 1700 (1972-73).

with the process of delineation since it listed only those 700 occupations in which 90 percent of the people in the United States are employed.

3. A further delineation of the list of 700 occupations was accomplished through the use of the *Vocational Education Exemplary Program*[7] which is used by the Kansas City, Kansas Public Schools. This publication lists all of the occupations in the State of Kansas which employ more than 250 people. This publication was extremely useful during the curriculum writing phase of the study since it listed the following information: a description of the occupation, requirements and qualifications for entry, preparation and training needed, prospects and opportunities in the occupation, job and salary information, sources of additional information related to the occupation, and related occupations. At the time the research study was in process, the State of Missouri did not have such an analysis of occupations available or it would have been used in conjunction with the project.
4. This analysis yielded numerous occupations by cluster. It was from this grouping that fourth and fifth grade teachers selected those

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[7] Kansas City Area Vocational-Technical School, *Vocational Exemplary Education Project*, I, 4 (January 15, 1972).

occupations to be included as a part of their curriculum. All teachers chose different occupations to write on so as to provide better curricular articulation.

5. The final step was to write the career-oriented, cluster-based curriculum around the occupations which the teachers had chosen. As the teachers were developing content for the clusters, they also analyzed it for its traditional subject matter implications; i.e., its mathematical, scientific, social and lingual implications, to mention but a few. Emphasis was also devoted to securing content of an affective, psychomotor, and cognitive nature with respect to the above mentioned implications.

Measuring Instruments Used in the Study

Grade Level Equivalency Test. The Iowa Test of Basic Skills[8] was administered to all third- and fourth-grade students during the second semester of the 1973 school year as part of the regular testing program conducted by the Fort Osage Public School District. The composite scores from the test were used to equate student ability levels for the three treatment groups.

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[8] E. F. Lindquist, A. N. Hieronymus, and others, Iowa Test of Basic Skills (Form 5) (Boston: Houghton Mifflin, 1955-1956).

Student Achievement Tests. The measures of student achievement used in this study were secured through the administration of standardized tests. Four measures of achievement were used to assess three career education concepts as follows:

1. Career Awareness
    a. Orientation to Career Concepts Test[9]
2. Self Awareness
    a. How I See Myself Test[10]
    b. Self Appraisal Inventory[11]
3. Career Decision Making Skills
    a. Everyday Decision Making Test[12]

The researcher could secure only normative data on the Orientation to Career Concepts Test and the Everyday Decision Making Test as these instruments had only been developed within the year.

Teacher Achievement Test. The measure of teacher achievement used in this study was secured through the administration of a non-standardized test. All of the consultants who participated in the workshop phase of the study were asked to submit 10 to 20 objective questions over their presentation to the researcher for use in developing a teacher achievement test. The researcher contributed 75 objective questions to the pool of items. The items were then re-typed and submitted to the consultants, who served as judges, for their evaluation. A copy of the letter sent to the consultants containing instructions for critiquing the items is provided in the Appendix.[13] The 50 items which had received the highest ranking by the judges were used for the Teacher Achievement Test.[14]

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[9] See Appendix D

[10] See Appendix E

[11] See Appendix F

[12] See Appendix G

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[13] See Appendix H

[14] See Appendix I

ASCERTAINING GROUP EQUIVALENCY AND CONDUCTING THE EXPERIMENT

Selection of the Research Population

Only those students who had taken all pre-test and post-test sections of the Orientation to Career Concepts,[1] How I See Myself,[2] Self Appraisal Inventory,[3] and Everyday Decision Making[4] test instruments were included in the study. Of the original 497 fourth and fifth grade students who had taken all pre-test sections of the test instruments, only 365 students completed all pre-test and post-test sections of all four test instruments. Therefore, complete research data were available on only 365 fourth and fifth grade students of the original 497. Table I shows the distribution of the total research population of 365 fourth and fifth grade students as they were classified by methods, grade levels, and sex.

This classification technique yielded two groups composed of 25 students. In an effort to make comparisons between equal numbers of students by methods, grade levels, and sex, a random sample of 25 students was taken from each of the remaining sub-groups.

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[1] See Appendix D

[2] See Appendix E

[3] See Appendix F

[4] See Appendix G

TABLE I

DISTRIBUTION OF THE RESEARCH POPULATION* BY METHODS, GRADE LEVELS, AND SEX

Grade	Method A		Method B		Method C	
Levels	Male	Female	Male	Female	Male	Female
4	30	28	34	39	25	26
5	27	40	31	34	26	25

*365

In an effort to objectively randomize each of the 12 sub-groups, The Rand Corporation's[5] table of random numbers was utilized. Table II reveals the distribution of fourth and fifth grade students by methods, grade levels, and sex of the random sample.

TABLE II

DISTRIBUTION OF THE RANDOM SAMPLE* BY METHODS, GRADE LEVELS, AND SEX

Grade	Method A		Method B		Method C	
Levels	Male	Female	Male	Female	Male	Female
4	25	25	25	25	25	25
5	25	25	25	25	25	25

*300 students

The measures used in this study were taken from this random sample of 150 fourth and 150 fifth grade students.

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[5] The Rand Corporation, A Million Random Digits With 100,000 Normal Deviates, (3rd ed.; New York: The Free Press, 1966), pp. 600.

Ascertaining Equivalency of Groups

In order to attribute any differences which might exist among groups of students to an experimental factor it becomes necessary to test for the equivalency of the groups. If significant differences exist, they must be accounted for before any differences in the end results can be attributed to the experimental factor. Through a discussion with the Director of Elementary School Curriculum, it was learned that the three elementary schools involved in the study were comparable on the following variables:

1. Percent of students by race
2. Socio-economic levels of the students
3. Stability of student population
4. Intelligence levels of students

Even though the identification and measurement of all traits which might influence the operation of the experimental factor may be desirable, it is nearly impossible to accomplish. For the purpose of this experiment, it seemed advisable to limit the equivalency factor to one variable which was judged to have the greatest effect on the experimental factor and which could readily be measured with a relatively high degree of success. The equivalency factor chosen was student grade level equivalency as measured by the Iowa Test of Basic Skills (Form 5).[6]

Since the design of the experiment called for the utilization of data from only those students who had taken

[6] Lindquist, Hieronymus, and others, *loc. cit.*

all pre-test and post-test sections of the four test instruments used in the study, and since it was impossible for the experimenter to control the assignment of students into the fourth and fifth grade classes comprising the experimental and control groups, precise matching of groups was not attempted. The researcher chose to accept the groups as they were assigned, testing for any differences which existed among the groups after they had been randomly selected from those who had taken all pre-test and post-test sections of the four instruments and adjusting the end results if significant differences were present.

Status of Students on the Grade Level Equivalency Factor

A two-way analysis of variance was applied to the student grade level equivalency scores of the 150 fourth grade and the 150 fifth grade students who composed the random sample. This statistic was employed to ascertain whether or not any differences existed among the three treatment groups on the grade level equivalency factor. Statistical significance for obtained F values was tested at the five percent level of confidence as was the case throughout the study. The results of the analysis of variance for grade level equivalency are reported in Table III.

The combined means for the student grade level equivalency factor as measured by the Iowa Test of Basic Skills

TABLE III

TWO-WAY ANALYSIS OF VARIANCE FOR STUDENT GRADE LEVEL EQUIVALENCY ON THE IOWA TEST OF BASIC SKILLS (FORM 5)

	Source	D.F.	S.S.	Variance	F
Grade 4	Methods	2	9.01	4.51	0.057
	Sex	1	12.32	12.32	0.152
	Methods x Sex	2	107.26	53.63	0.674
	Within Cell Error	124	9,863.60	79.55	
	Totals	149	9,992.19		
Grade 5	Methods	2	73.45	36.73	0.208
	Sex	1	922.55	922.55	5.230*
	Methods x Sex	2	66.37	33.19	0.188
	Within Cell Error	124	21,872.96	176.39	
	Totals	149	22,935.33		

F-ratios required for significance at the .05 level are 3.92 for 1 and 124 degrees of freedom, and 3.07 for 2 and 124 degrees of freedom. F-ratios required for significance at the .01 level are 6.84 for 1 and 124 degrees of freedom, and 4.78 for 2 and 124 degrees of freedom.

*Significance at the .05 level. **Significance at the .01 level.

(Form 5)[7] for the fourth grade students who experienced Treatments A, B, and C were 3.978, 4.038, and 4.006, respectively; while the combined means for the student grade level equivalency factor for the fifth grade students who experienced Treatments A, B, and C were 4.758, 4.924, and 4.878, respectively.

No significant differences in the grade level equivalency factor were found at the fourth and fifth grade levels between the three treatment groups with respect to methods. The obtained F values for methods were less than the table value required for significance at the five percent level of confidence. Thus, it was assumed that the differences between fourth grade students studying by the three methods and fifth grade students studying by the three methods were no greater than could be expected by chance. A more detailed description of individual and combined cell means for the student grade level equivalency factor as based on the Iowa Test of Basic Skills (Form 5), is provided in the Appendix.[8]

The two-way analysis of variance reported in Table III did reveal one significant difference, but since the difference involved the sex variable, no analysis was made of the difference as methods were not involved.

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[7] *Ibid*.

[8] See Appendix L

Administration of Student Achievement Tests

As was stated previously, the Iowa Test of Basic Skills (Form 5)[9] had been administered to all of the fourth and fifth grade students by personnel in the Fort Osage Public School District as a part of their regular testing program. It was assumed that this test had been administered uniformly and in accordance with recommended procedures.

All pre-test measures of student achievement used in the study were administered by the researcher and his secretary. Both of the instruments designed to assess the student self awareness concept were administered on the same day. This was followed by five days of testing on the career awareness concept. The instrument used contained ten sub-sections, one of which was administered in the morning, followed by another sub-section in the afternoon for each of five days. The career decision making skill concept was the last to be tested. This was administered on the seventh day of testing. Each of the four instruments utilized in the study was reproduced in booklet form and handed to the students at the start of the testing period. General directions concerning the instrument were read aloud. Since the ability to read was not a factor being measured in the study and since none of the tests had an assigned time limit, all items were read aloud while the students read silently and each student was given an opportunity to answer all items. All post-test measures of student achievement used in the study were administered by the fourth and fifth grade teachers participating in the study. The teachers were encouraged to use the same testing schedule and technique as had been used to administer the pre-test. Seven school days were set aside to administer the tests in one school, after which the researcher moved to another school for seven days of testing and so on. This same procedure was used for the post-testing phase of the project, thus allowing for an 18-week interval between the administration of the pre-test and the post-test in each of the three schools. One instrument was used for all of the pre-test and post-test measures taken.

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[9] *Ibid*.

Scoring of Student Achievement Tests

Three of the four instruments used in the study were hand-scored. The only instrument that was machine scored was the Self Appraisal Inventory[10] which used a standard optical scanning answer sheet. The pre-designed optical scanning answer sheet used in conjunction with the Orientation to Career Concepts Test[11] was not compatible with the optical scanning equipment housed on the Central Missouri State University campus. This necessitated hand-scoring of this instrument. Although a standard optical scanning answer sheet was used in conjunction with the Everyday

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[10] See Appendix F

[11] See Appendix D

Decision Making Instrument,[12] it was also hand-scored due to the optical scanning equipment's inability to add item responses marked in one of five different locations. How I See Myself[13] was also hand scored as it was designed as a consumable instrument.

The pre-test and post-test raw scores along with other pertinent data were transferred to a Data Format Sheet. An example of this form is provided in the Appendix.[14] After all of the pertinent information had been key punched, the researcher verified the data.

Ascertaining Equivalency of Teachers

A total of ten fourth-grade and ten fifth-grade teachers participated in the study. There were three fourth- and three fifth-grade teachers comprising Experimental Treatment A and Control Treatment C, while there were four fourth- and four fifth-grade teachers comprising Enrichment Treatment B.

As a part of the study, it was necessary to ascertain the extent to which the teachers participating in the study were similar on the following variables:

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[12] See Appendix G

[13] See Appendix E

[14] See Appendix J

1. Age
2. Sex
3. Years of teaching experience
4. Willingness to participate in the study

The personal data sheets of the teachers, which are housed in the Fort Osage Board of Education Office, were used to secure this data. All teachers had expressed their willingness to participate and a visual inspection of the data sheets revealed no apparent differences between the teachers participating in the study.

Administration of Teacher Achievement Test

The pre-test and post-test measures of teacher achievement were administered by the researcher. The pre-test was administered on the first day of the workshop developed around the career education cluster concept, and the post-test was administered on the last day of the three-week workshop. The pre-test and post-test used in the study were the same.

Scoring of Teacher Achievement Test

A standard optical scanning answer sheet was used in conjunction with the Teacher Achievement Instrument.[15] The answer sheets were then machine-scored and the data were analyzed for a significant difference.

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[15] See Appendix I

Conducting the Experiment

The general procedure followed by the two experimental groups in presenting the career cluster concepts, the tests that were administered, and the time intervals between testing were the same for both experimental groups with one exception. All curricular activities of Treatment B were phased ten school days behind the curriculum and activities undertaken by Treatment A. This allowed for the pre-testing phase to be completed in the school where Treatment A was being conducted prior to the testing that was carried by the other experimental group. This also allowed the teachers in Treatment A to share their materials with the teachers in Treatment B prior to the time when the latter group would be teaching the units. While the students in Treatment A were being tested, the teachers in Treatment B were reviewing concepts from the previous year.

The actual teaching phase of the project was initiated during the second week of the first semester and was completed one week after the completion of the first semester. A Time Schedule for the Experiment is provided in the Appendix.[16]

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[16] See Appendix K

MEASUREMENT AND ANALYSIS OF RESULTS

The primary purpose of this investigation was to ascertain the relative effect of selected career education concepts upon the achievement of fourth and fifth grade elementary school students. The results of pre-tests and post-tests, taken by 150 fourth grade students and 150 fifth grade students who comprised a random sample, were analyzed for differences which may have resulted from the treatments used in teaching the selected career education concepts. The major career education concepts which were explored were those of career awareness, self awareness, and career decision making skills.

A secondary purpose of this investigation was to ascertain the relative effect of selected career education concepts upon the achievement of fourth and fifth grade elementary school teachers. The results of pre-tests and post-tests taken by the six teachers comprising the sample were analyzed for differences which may have resulted from the treatment used in teaching the career education concepts.

Since there is a definite lack of experimental research data to support the career education concept, the .05 level of confidence has been accepted as the standard confidence level for this study. Although the .05 level of confidence is accepted as the standard confidence level for this study, the .01 level of confidence will also be identified wherever that degree of confidence is found to be significant.

Achievement of Selected Career Education Concepts

As used in this study, achievement refers to the learning that has taken place during the 18-week interval between the administration of the pre-test and the post-test. All measures of student achievement used in this study were secured through the use of standardized instruments. Since no standardized instrument was available to measure the teachers' achievement of selected career education concepts, an objective examination was developed by the researcher. This instrument consisted of true-false and multiple-choice items which were submitted by the researcher to a panel of judges who evaluated the items for use in the study. The final instrument designed to measure the teachers' achievement of selected career education concepts was revised in accordance with the recommendations of the judges. All pre-test measures of student and teacher achievement used in the study were administered by the researcher while all post-test measures of student achievement were administered by the fourth and fifth grade elementary school teachers participating in the study, and the post-test measure of teacher achievement used in the study was administered by the researcher.

Since this was basically a study of the effectiveness of different methods used to present the concepts of career education, the data reported is confined primarily to a study of the effect that the methods have had upon Treatments A, B, and C.

Student Achievement of the Total Career Awareness Concept. The three-way analysis of variance revealed significant differences among the three methods of instruction with regard to gains in student achievement of the total career awareness concept as measured by the Orientation to Career Concepts test. This instrument contained ten sub-tests, each designed to measure a different aspect of the career awareness concept. All of the sub-tests were combined to measure the total career awareness concept. An example of this instrument is provided in the Appendix.[1] Table IV provides the results of the three-way analysis of variance for gains in student achievement of the total career awareness concept. The combined pre-test means for students exposed to Treatments A, B, and C were 92.41, 96.81, and 99.82, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 109.76, 109.73, and 105.69, respectively. Thus, the combined mean gains for Groups A, B, and C were 17.35, 12.92, and 5.87, respectively. The differences between the combined mean gains in student achievement were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the total career awareness concept, is provided in the Appendix.[2]

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[1] See Appendix D

[2] See Appendix L

TABLE IV

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE TOTAL CAREER AWARENESS CONCEPT BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	6,703.9124	3,351.9560	20.6561**
Grade Levels	1	1.0800	1.0800	0.0067
Sex	1	345.6133	345.6133	2.1298
Methods x Grade Levels	2	202.0310	101.0155	0.6225
Methods x Sex	2	365.6927	182.8453	1.1268
Grade Levels x Sex	1	87.4795	87.4795	0.5391
Methods x Grade Levels x Sex	2	101.9570	50.9785	0.3141
Within Cell Error	288	46,735.0625	162.2745	
Totals	299	54,542.8164		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_1) of no significant difference in student achievement of the career awareness concept among the groups of students receiving instruction by Treatments A, B, and C was rejected.

Student Achievement of the Total Career Awareness Concept and Methods of Instruction. Newman-Keuls[3] multiple comparison procedure was applied to the differences between the combined mean gains in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the career awareness concept. Table V provides the results of the multiple comparison analysis for gains in student achievement of the total career awareness concept. The results of this test indicated that the gains for Treatment Groups A and B were significantly greater than the gain for Treatment C. There was also a significant difference found between Treatment Groups A and B with respect to gains in student achievement of the total career awareness concept.

On the basis of the multiple comparison of the differences between combined mean gains, the null hypothesis (Ho_2) of no significant difference in student achievement of the total career awareness concept between students who received instruction by Treatments A and C was rejected; by Treatments B and C was rejected; by Treatments A and B was rejected.

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[3] B. J. Winer, *Statistical Principles in Experimental Design* (New York: McGraw-Hill Book Co., Inc., 1971), pp. 191-195.

TABLE V

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE TOTAL CAREER AWARENESS CONCEPT BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	B	A		
	5.87	12.92	17.35	.05	.01
C 5.87		7.05**	11.48**	r_3 4.28	r_3 5.33
B 12.92			4.43*	r_2 3.57	r_2 4.71
A 17.35					

*Significance at the .05 level.

**Significance at the .01 level.

The ten sub-tests which comprised the Orientation to Career Concepts test were then examined individually for significance.

Student Achievement of the Work Awareness Concept of Career Awareness. A three-way analysis of variance revealed no significant differences among the three methods of instruction with regard to gains in student achievement of the work awareness concept of career awareness. Table VI

TABLE VI

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE WORK AWARENESS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	28.1866	14.0933	2.1056
Grade Levels	1	0.0133	0.0133	0.0020
Sex	1	0.2133	0.2133	0.0319
Methods x Grade Levels	2	24.8267	12.4133	1.8546
Methods x Sex	2	3.3867	1.6933	0.2530
Grade Levels x Sex	1	3.0000	3.0000	0.4482
Methods x Grade Levels x Sex	2	15.6834	7.8417	1.1716
Within Cell Error	288	1,927.6482	6.6932	
Totals	299	2,002.9582		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

provides the results of the three-way analysis of variance for gains in student achievement of the work awareness concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 10.78, 11.04, and 11.20, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 12.62, 12.62, and 12.30, respectively. Thus, the combined mean gains for Groups A, B, and C were 1.84, 1.58, and 1.10, respectively. The differences between the combined mean gains in student achievement were tested and found to be no greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the work awareness concept of career awareness, is provided in the Appendix.[4]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_3) of no significant difference of the work awareness concept of career awareness among the three groups of students receiving instruction by Treatments A, B, and C was accepted.

Student Achievement of the Work Awareness Concept of Career Awareness and Methods of Instruction. Acceptance of the null hypothesis (Ho_3) negated the necessity for a multiple comparison of the differences between the combined mean gains in student achievement of the work awareness concept of career awareness. Based on the results of the null hypothesis (Ho_3), the null hypothesis (Ho_4) of no significant difference in student achievement of the work awareness concept of career awareness between students who received instruction by Treatments A and C was accepted; by Treatments B and C was accepted; by Treatments A and B was accepted.

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[4] See Appendix L

Student Achievement of the Worker Activities Concept of Career Awareness. When the differences between the gain scores for students who had received instruction by the three treatments with regard to the worker activities concept of career awareness were tested by a three-way analysis of variance, a significant difference was found. Table VII provides the results of the three-way analysis of variance for gains in student achievement of the worker activities concept of career awareness. The combined pretest means for students exposed to Treatments A, B, and C were 8.39, 9.39, and 9.13, respectively. The combined posttest means for students who experienced Treatments A, B, and C were 10.76, 10.65, and 10.21, respectively. Thus, the combined mean gains for Groups A, B, and C were 2.37, 1.26, and 1.08, respectively. The differences between the combined mean gains in student achievement of the worker activities concept of career awareness were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores,

TABLE VII

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE WORKER ACTIVITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	97.6200	48.8100	5.5591**
Grade Levels	1	0.4033	0.4033	0.0459
Sex	1	12.4033	12.4033	1.4127
Methods x Grade Levels	2	1.9267	0.9633	0.1097
Methods x Sex	2	1.1667	0.5833	0.0664
Grade Levels x Sex	1	6.7500	6.7500	0.7688
Methods x Grade Levels x Sex	2	50.5391	25.2696	2.8780
Within Cell Error	288	2,528.6890	8.7802	
Totals	299	2,699.4980		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

with regard to gains in student achievement of the worker activities concept of career awareness is provided in the Appendix.[5]

On the basis of the results of the three-way analysis of variance, the null hypotheses (Ho_5) of no significant difference in student achievement of the worker activities concept of career awareness among the groups of students receiving instruction by Treatments A, B, and C was rejected.

Student Achievement of the Worker Activities Concept of Career Awareness and Methods of Instruction. The multiple comparison procedure developed by Newman-Keuls[6] was applied to the differences between the combined mean gains in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the worker activities concept of career awareness. Table VIII provides the results of the multiple comparison analysis for gains in student achievement of the worker activities concept of career awareness. The results of this test indicated that the gain for Treatment Group A was significantly greater than the gains for Treatment Groups B and C. There was no significant difference found between

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[5] See Appendix L

[6] *Ibid*.

Treatment Groups B and C with respect to gains in student achievement of the workers activities concept of career awareness.

TABLE VIII

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE WORKER ACTIVITIES CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	B	A		
	1.08	1.26	2.37	.05	.01
C 1.08		0.18	1.29**	r_3 1.00	r_3 1.24
B 1.26			1.11**	r_2 .83	r_2 1.10
A 2.37					

*Significance at the .05 level.

**Significance at the .01 level.

On the basis of the multiple comparison of differences between combined mean gains, the null hypothesis (Ho_6) of no significant difference in student achievement of the worker activities concept of career awareness between students who received instruction by Treatments A and C was rejected; by Treatments B and C was accepted; by Treatments A and B was rejected.

Student Achievement of the Vocational Vocabulary Concept of Career Awareness. The results of a three-way analysis of variance reported in Table IX, revealed a significant difference among the three methods of instruction with regard to gains in student achievement of the vocational vocabulary concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 6.92, 7.88, and 7.16, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 9.70, 9.38, and 8.75, respectively. Thus, the combined mean gains for Groups A, B, and C were 2.78, 1.50, and 1.59, respectively. The differences between the combined mean gains in student achievement of the vocational vocabulary concept of career awareness were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the vocational vocabulary concept of career awareness is provided in the Appendix.[7]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_7) of no significant difference in student achievement of the vocational vocabulary concept of career awareness among the groups of students receiving instruction by Treatments A, B, and C was rejected.

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[7] See Appendix L

TABLE IX

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE VOCATIONAL VOCABULARY CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	102.0866	51.0433	3.0908*
Grade Levels	1	27.6033	27.6033	2.1144
Sex	1	1.4700	1.4700	0.1126
Methods x Grade Levels	2	70.9266	35.4633	2.7164
Methods x Sex	2	15.8600	7.9300	0.6074
Grade Levels x Sex	1	0.0300	0.0300	0.0023
Methods x Grade Levels x Sex	2	6.5225	3.2612	0.2498
Within Cell Error	288	3,759.8892	13.0552	
Totals	299	3,984.3882		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

Student Achievement of the Vocational Vocabulary Concept of Career Awareness and Methods of Instruction. The differences between the combined mean gains were tested, using Newman-Keuls[8] multiple comparison procedure, in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the vocational vocabulary concept of career awareness. Table X provides the results of the multiple comparison analysis for gains in student achievement of the vocational vocabulary concept of career awareness.

TABLE X

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE VOCATIONAL VOCABULARY CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	B	C	A		
	1.50	1.59	2.78	.05	.01
B 1.50		0.09	1.28*	r_3 1.21	r_3 1.52
C 1.59			1.19*	r_2 1.01	r_2 1.34
A 2.78					

*Significance at the .05 level.

**Significance at the .01 level.

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[8] *Ibid.*

The results of this test indicated that the gain for Treatment Group A was significantly greater than the gains for Treatment Groups B and C. There was no significant difference found between Treatment Groups B and C with respect to gains in student achievement of the vocational vocabulary concept of career awareness.

On the basis of the multiple comparison of differences between combined mean gains, the null hypothesis (Hc_8) of no significant difference in student achievement of the vocational vocabulary concept of career awareness between students who received instruction by Treatments A and C was rejected; by Treatments B and C was accepted; by Treatments A and B was rejected.

Student Achievement of the Occupational Picture Absurdities Concept of Career Awareness. Table XI provides the results of a three-way analysis which revealed a significant difference among the three methods of instruction with regard to gains in student achievement of the occupational picture absurdities concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 13.01, 12.54, and 13.43, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 14.71, 13.38, and 13.42, respectively. Thus, the combined mean gains for Groups A, B, and C were 1.70, 0.84, and -0.01, respectively. The differences between the combined mean gains in student achievement were

TABLE XI

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE OCCUPATIONAL PICTURE ABSURDITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	146.2065	73.1032	4.5017*
Grade Levels	1	4.0833	4.0833	0.2514
Sex	1	1.4700	1.4700	0.0905
Methods x Grade Levels	2	60.2865	30.1432	1.8562
Methods x Sex	2	86.1800	43.0900	2.6535
Grade Levels x Sex	1	3.6300	3.6300	0.2235
Methods x Grade Levels x Sex	2	14.7847	7.3923	0.4552
Within Cell Error	288	4,676.8555	16.2391	
Totals	299	4,993.4961		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the occupational picture absurdities concept of career awareness, is provided in the Appendix.[9]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_9) of no significant difference of the occupational picture absurdities concept of career awareness among the three groups of students receiving instruction by Treatments A, B, and C was rejected.

Student Achievement of the Occupational Picture Absurdities Concept of Career Awareness and Methods of Instruction. Newman-Keuls[10] multiple comparison procedure was applied to the differences between the combined mean gains in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the occupational picture absurdities concept of career awareness. Table XII provides the results of the multiple comparison analysis for gains in student achievement of the occupational picture absurdities concept of career awareness. The results of this test indicated that the gain for Treatment Group A was significantly greater than the gain for Treatment C. There were no significant differences found between Treatment Groups A and B and Treatment

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[10] *Ibid*.

Groups B and C with respect to gains in student achievement of the occupational picture absurdities concept of career awareness.

TABLE XII

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE OCCUPATIONAL PICTURE ABSURDITIES CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	B	A		
	-0.01	0.84	1.70	.05	.01
C -0.01		0.85	1.71**	r_3 1.35	r_3 1.69
B 0.84			0.86	r_2 1.13	r_2 1.49
A 1.70					

*Significance at the .05 level.

**Significance at the .01 level.

On the basis of the multiple comparison of the differences between combined mean gains, the null hypothesis (Ho_{10}) of no significant difference in student achievement of the occupational picture absurdities concept of career awareness between students who received instruction by Treatments A and C was rejected; by Treatments B and C was accepted; by Treatments A and B was accepted.

Student Achievement of the Occupational Picture Similarities Concept of Career Awareness. When the differences between the gain scores for students who had received instruction by the three treatments with regard to the occupational picture similarities concept of career awareness were tested by a three-way analysis of variance, no significant difference was found. Table XIII provides the results of the three-way analysis of variance for gains in student achievement of the occupational picture similarities concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 9.97, 10.62, and 10.18, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 11.82, 12.06, and 11.23, respectively. Thus, the combined mean gains for Groups A, B, and C were 1.85, 1.44, and 1.05, respectively. The differences between the combined mean gains in student achievement of the occupational picture similarities concept of career awareness were tested and found to be no greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the occupational picture similarities concept of career awareness is provided in the Appendix.[11]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{11}) of no significant difference in student achievement of the occupational

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[11] See Appendix L

TABLE XIII

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE OCCUPATIONAL PICTURE SIMILARITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	32.0066	16.0033	1.6137
Grade Levels	1	7.6800	7.6800	0.7744
Sex	1	22.4133	22.4133	2.2601
Methods x Grade Levels	2	3.9800	1.9900	0.2007
Methods x Sex	2	0.3267	0.1633	0.0165
Grade Levels x Sex	1	54.6133	54.6133	5.5071**
Methods x Grade Levels x Sex	2	13.0543	6.5272	0.6582
Within Cell Error	288	2,856.0466	9.9168	
Totals	299	2,990.1208		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

picture similarities concept of career awareness among the groups of students receiving instruction by Treatments A, B, and C was accepted.

Student Achievement of the Occupational Picture Similarities Concept of Career Awareness and Methods of Instruction. Acceptance of the null hypothesis (Ho_{11}) negated the necessity for a multiple comparison of the differences between the combined mean gains in student achievement of the occupational picture similarities concept of career awareness. Based on the results of the null hypothesis (Ho_{11}), the null hypothesis (Ho_{12}) of no significant difference in student achievement of the occupational picture similarities concept of career awareness between students who received instruction by Treatments A and C was accepted; by Treatments B and C was accepted; by Treatments A and B was accepted.

Student Achievement of the Occupational Tools Concept of Career Awareness. The results of a three-way analysis of variance reported in Table XIV, revealed a significant difference among the three methods of instruction with regard to gains in student achievement of the occupational tools concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 12.49, 13.49, and 13.95, respectively. The combined post-test means for students who experienced Treatments A, B, and C were

TABLE XIV

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE OCCUPATIONAL TOOLS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	151.0466	75.5233	8.4053**
Grade Levels	1	8.3333	8.3333	0.9274
Sex	1	7.0533	7.0533	0.7850
Methods x Grade Levels	2	22.6067	11.3033	1.2580
Methods x Sex	2	43.6866	21.8433	2.4310
Grade Levels x Sex	1	9.7200	9.7200	1.0818
Methods x Grade Levels x Sex	2	12.7418	6.3709	0.7090
Within Cell Error	288	2,587.7258	8.9852	
Totals	299	2,842.9141		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

14.82, 15.10, and 14.55, respectively. Thus, the combined mean gains for Groups A, B, and C were 2.33, 1.61, and 0.60, respectively. The differences between the combined mean gains in student achievement of the occupational tools concept of career awareness were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the occupational tools concept of career awareness is provided in the Appendix.[12]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{13}) of no significant difference in student achievement of the occupational tools concept of career awareness among the groups of students receiving instruction by Treatments A, B, and C was rejected.

Student Achievement of the Occupational Tools Concept of Career Awareness and Methods of Instruction. The differences between the combined mean gains were tested, using Newman-Keuls[13] multiple comparison procedure, in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the occupational tools concept of career awareness. Table XV provides the results of the multiple comparison analysis for gains in student achievement of the occupational tools concept of career awareness. The results of this test indicated that the gains for Treatment Groups A and B were significantly greater than the gain for Treatment C. There was no significant difference found between Treatment Groups A and B with respect to gains in student achievement of the occupational tools concept of career awareness.

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[12] See Appendix L

[13] *Ibid.*

TABLE XV

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE OCCUPATIONAL TOOLS CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	B	A		
	0.60	1.61	2.33	.05	.01
C 0.60		1.01*	1.73**	r_3 1.01	r_3 1.26
B 1.61			0.72	r_2 0.84	r_2 1.11
A 2.33					

*Significance at the .05 level.

**Significance at the .01 level.

On the basis of the multiple comparison of differences between combined mean gains, the null hypothesis (Ho_{14}) of no significant difference in student achievement of the occupational tools concept of career awareness between students who received instruction by Treatments A and C was rejected; by Treatments B and C was rejected; by Treatments A and B was accepted.

Student Achievement of the Work Stories Concept of Career Awareness. Table XVI provides the results of a three-way analysis of variance which revealed a significant difference among the three methods of instruction with regard to gains in student achievement of the work stories concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 10.16, 10.87, and 11.23, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 12.22, 12.50, and 11.58, respectively. Thus, the combined mean gains for Groups A, B, and C were 2.06, 1.63, and 0.35, respectively. The differences between the combined mean gains in student achievement were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the work stories concept of career awareness, is provided in the Appendix.[14]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{15}) of no significant difference of the work stories concept of career awareness among the three groups of students receiving instruction by Treatments A, B, and C was rejected.

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[14] See Appendix L

TABLE XVI

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE WORK STORIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	158.2465	79.1232	7.9285**
Grade Levels	1	20.2799	20.2799	2.0321
Sex	1	44.8533	44.8533	4.4945*
Methods x Grade Levels	2	21.5000	10.7500	1.0772
Methods x Sex	2	2.2467	1.1233	0.1126
Grade Levels x Sex	1	3.8533	3.8533	0.3861
Methods x Grade Levels x Sex	2	4.8113	2.4056	0.2411
Within Cell Error	288	2,874.1265	9.9796	
Totals	299	3,129.9175		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

Student Achievement of the Work Stories Concept of Career Awareness and Methods of Instruction. Newman-Keuls[15] multiple comparison procedure was applied to the differences between the combined mean gains in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the work stories concept of career awareness. Table XVII provides the results of the multiple comparison analysis for gains in student achievement of the work stories concept of career awareness.

TABLE XVII

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE WORK STORIES CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	B	A		
	0.35	1.63	2.06	.05	.01
C 0.35		1.28**	1.71**	r_3 1.06	r_3 1.33
B 1.63			0.43	r_2 0.88	r_2 1.17
A 2.06					

*Significance at the .05 level.

**Significance at the .01 level.

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[15] Ibid.

The results of this test indicated that the gains for Treatment Groups A and B were significantly greater than the gain for Treatment C. There was no significant difference found between Treatment Groups A and B with respect to gains in student achievement of the work stories concept of career awareness.

On the basis of the multiple comparison of differences between combined mean gains, the null hypothesis (Ho_{16}) of no significant difference in student achievement of the work stories concept of career awareness between students who received instruction by Treatments A and C was rejected; by Treatments B and C was rejected; by Treatments A and B was accepted.

Student Achievement of the Working Conditions Concept of Career Awareness. When the differences between the gain scores for students who had received instruction by the three treatments with regard to the working conditions concept of career awareness were tested by a three-way analysis of variance, a significant difference was found. Table XVIII provides the results of the three-way analysis of variance for gains in student achievement of the working conditions concept of career awareness. The combined pretest means for students exposed to Treatments A, B, and C were 7.07, 7.30, and 8.11, respectively. The combined posttest means for students who experienced Treatments A, B, and C were 8.57, 8.79, and 8.57, respectively. Thus, the

TABLE XVIII

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE WORKING CONDITIONS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	71.4199	35.7100	4.4683*
Grade Levels	1	2.0833	2.0833	0.2607
Sex	1	5.0700	5.0700	0.6344
Methods x Grade Levels	2	26.4467	13.2233	1.6546
Methods x Sex	2	14.8200	7.4100	0.9272
Grade Levels x Sex	1	12.4033	12.4033	1.5520
Methods x Grade Levels x Sex	2	12.3259	6.1629	0.7712
Within Cell Error	288	2,301.6443	7.9918	
Totals	299	2,446.2134		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

combined mean gains for Groups A, B, and C were 1.50, 1.49, and 0.46, respectively. The differences between the combined mean gains in student achievement of the working conditions concept of career awareness were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores with regard to gains in student achievement of the working conditions concept of career awareness is provided in the Appendix.[16]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{17}) of no significant difference in student achievement of the working conditions concept of career awareness among the groups of students receiving instruction by Treatments A, B, and C was rejected.

Student Achievement of the Working Conditions Concept of Career Awareness and Methods of Instruction. The differences between the combined mean gains were tested, using Newman-Keuls[17] multiple comparison procedure, in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the working conditions concept of career awareness. Table XIX provides the results of the multiple comparison analysis for gains in student achievement of the working conditions

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[16] See Appendix L

[17] Ibid.

TABLE XIX

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE WORKING CONDITIONS CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	B	A		
	0.46	1.49	1.50	.05	.01
C 0.46		1.03*	1.04*	r_3 0.95	r_3 1.19
B 1.49			0.01	r_2 0.79	r_2 1.05
A 1.50					

*Significance at the .05 level.

**Significance at the .01 level.

concept of career awareness. The results of this test indicated that the gains for Treatment Groups A and B were significantly greater than the gain for Treatment C. There was no significant difference found between Treatment Groups A and B with respect to gains in student achievement of the working conditions concept of career awareness.

On the basis of the multiple comparison of differences between combined mean gains, the null hypothesis (Ho_{18}) of no significant difference in student achievement of the working conditions concept of career awareness between students who received instruction by Treatments A and C was rejected; by

Treatments B and C was rejected; by Treatments A and B was accepted.

Student Achievement of the Occupational Training Concept of Career Awareness. Table XX provides the results of a three-way analysis of variance which revealed no significant difference among the three methods of instruction with regard to gains in student achievement of the occupational training concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 5.44, 5.24, and 5.60, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 5.22, 5.49, and 5.49, respectively. Thus, the combined mean gains for Groups A, B, and C were -0.22, 0.25, and -0.11, respectively. The differences between the combined mean gains in student achievement were tested and found to be no greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the career awareness, is provided in the Appendix.[18]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{19}) of no significant difference in student achievement of the occupational training concept of career awareness among the three groups of students receiving instruction by Treatments A, B, and C was accepted.

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[18] See Appendix L

TABLE XX

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE OCCUPATIONAL TRAINING CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	12.0867	6.0433	1.0508
Grade Levels	1	5.8800	5.8800	1.0224
Sex	1	10.4533	10.4533	1.8176
Methods x Grade Levels	2	1.8200	0.9100	0.1582
Methods x Sex	2	2.4067	1.2033	0.2159
Grade Levels x Sex	1	16.3333	16.3333	2.8401
Methods x Grade Levels x Sex	2	2.4830	1.2415	0.2159
Within Cell Error	288	1,656.2900	5.7510	
Totals	299	1,707.7529		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

Student Achievement of the Occupational Training Concept of Career Awareness and Methods of Instruction. Acceptance of the null hypothesis (Ho_{19}) negated the necessity for a multiple comparison of the differences between the combined mean gains in student achievement of the occupational training concept of career awareness. Based on the results of the null hypothesis (Ho_{19}), the null hypothesis (Ho_{20}) of no significant difference in student achievement of the occupational training concept of career awareness between students who received instruction by Treatments A and C was accepted; by Treatments B and C was accepted; by Treatments A and B was accepted.

Student Achievement of the Workers' Earnings Concept of Career Awareness. The results of the three-way analysis of variance reported in Table XXI revealed a significant difference among the three methods of instruction with regard to gains in student achievement of the workers' earnings concept of career awareness. The combined pre-test means for students exposed to Treatments A, B, and C were 8.10, 8.26, and 9.68, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 9.43, 9.74, and 9.51, respectively. Thus, the combined mean gains for Groups A, B, and C were 1.33, 1.48, and -0.17, respectively. The differences between the combined mean gains in student achievement of the workers' earnings concept of career awareness were tested and found to be greater

TABLE XXI

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE WORKERS' EARNINGS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	166.4997	83.2498	9.3868**
Grade Levels	1	3.8533	3.8533	0.4345
Sex	1	0.2133	0.2133	0.0240
Methods x Grade Levels	2	40.8867	20.4434	2.3051
Methods x Sex	2	3.9267	1.9633	0.2214
Grade Levels x Sex	1	4.8133	4.8133	0.5427
Methods x Grade Levels x Sex	2	17.2442	8.6221	0.9722
Within Cell Error	288	2,554.2048	8.8688	
Totals	299	2,791.6421		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level

**Significance at the .01 level.

than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the workers' earnings concept of career awareness is provided in the Appendix.[19]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{21}) of no significant difference in student achievement of the workers' earnings concept of career awareness among the groups of students receiving instruction by Treatments A, B, and C was rejected.

Student Achievement of the Workers' Earnings Concept of Career Awareness and Methods of Instruction. Newman-Keuls[20] multiple comparison procedure was applied to the differences between the combined mean gains in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the workers' earnings concept of career awareness. Table XXII provides the results of the multiple comparison analysis for gains in student achievement of the workers' earnings concept of career awareness. The results of this test indicated that the gains for Treatment Groups A and B were significantly greater than the gain for Treatment C. There was no significant difference found between Treatment Groups A and B with

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[19] See Appendix L

[20] *Ibid*.

TABLE XXII

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE WORKERS' EARNINGS CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	A	B		
	-0.17	1.33	1.48	.05	.01
C -0.17		1.50**	1.65**	r_3 1.00	r_3 1.25
A 1.33			0.15	r_2 0.83	r_2 1.10
B 1.48					

*Significance at the .05 level.

**Significance at the .01 level.

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respect to gains in student achievement of the workers' earnings concept of career awareness.

On the basis of the multiple comparison of differences between combined mean gains, the null hypothesis (Ho_{22}) of no significant difference in student achievement of the workers' earnings concept of career awareness between students who received instruction by Treatments A and C was rejected; by Treatments B and C was rejected; by Treatments A and B was accepted.

Student Achievement of the Total Self Awareness Concept--A. The three-way analysis of variance revealed significant differences among the three methods of instruction with regard to gains in student achievement of the total self awareness concept as measured by the How I See Myself Inventory. An example of this instrument is provided in the Appendix.[21] Table XXIII provides the results of the three-way analysis of variance for gains in student achievement of the total self awareness concept as measured by the How I See Myself Inventory. The combined pre-test means for students exposed to Treatments A, B, and C were 138.07, 138.92, and 143.23, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 144.08, 143.16, and 140.28, respectively. Thus, the combined mean gains for Groups A, B, and C were 6.01, 4.24, and -2.95, respectively. The differences between the combined mean gains in student achievement were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the total self awareness concept as measured by the How I See Muself Inventory is provided in the Appendix.[22]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{23}) of no significant difference in student achievement of the total self awareness concept as measured by the How I See Myself Inventory

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[21] See Appendix E

[22] See Appendix L

TABLE XXIII

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE HOW I SEE MYSELF CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	4,503.6853	2,251.8425	5.1908**
Grade Levels	1	1,121.3296	1,121.3296	2.5848
Sex	1	328.6534	328.6533	0.7576
Methods x Grade Levels	2	2,278.7339	1,139.3669	2.6264
Methods x Sex	2	526.8499	263.4248	0.6072
Grade Levels x Sex	1	4,241.2762	4,241.2734	9.7768**
Methods x Grade Levels x Sex	2	2,181.6719	1,090.8359	2.5146
Within Cell Error	288	124,937.8175	433.8096	
Totals	299	140,119.3750		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

among the groups of students receiving instruction by Treatments A, B, and C was rejected.

Student Achievement of the Total Self Awareness Concept and Methods of Instruction--A. The multiple comparison procedure developed by Newman-Keuls[23] was applied to the differences between the combined mean gains in an effort to ascertain whether or not one treatment was more effective than another with respect to gains in student achievement of the total self awareness concept as measured by the How I See Myself Inventory. Table XXIV provides the results of the multiple comparison analysis for gains in student achievement of the total self awareness concept as measured by the How I See Myself Inventory. The results of this test indicate that the gains for Treatment Groups A and B were significantly greater than the gain for Treatment C. There was no significant difference found between Treatment Groups A and B with respect to gains in the total self awareness concept as measured by the How I See Myself Inventory.

On the basis of the multiple comparison of differences between combined mean gains, the null hypothesis (Ho_{24}) of no significant difference in student achievement of the total self awareness concept as measured by the How I See Myself Inventory between students who received instruction by Treatments A and C was rejected; by Treatments B and C was rejected; by Treatments A and B was accepted.

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[23] *Ibid*.

TABLE XXIV

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE HOW I SEE MYSELF CONCEPT OF CAREER AWARENESS BY METHOD

Ordered Means	Ordered Means			t-Values for Significance	
	C	B	A		
	-2.95	4.24	6.01	.05	.01
C -2.95		7.19*	8.96**	r_3 7.00	r_3 8.75
B 4.24			1.77	r_2 5.83	r_2 7.71
A 6.01					

*Significance at the .05 level.

**Significance at the .01 level.

Student Achievement of the Total Self Awareness Concept--B. The three-way analysis of variance revealed no significant differences among the three methods of instruction with regard to gains in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory. An example of this instrument is provided in the Appendix.[24] Table XXV provides the results of the three-way analysis of variance for gains in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory. The combined pre-test means for students exposed to Treatments A, B, and C were 48.56,

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[24] See Appendix F

TABLE XXV

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE SELF APPRAISAL INVENTORY CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	211.7264	105.8632	1.2805
Grade Levels	1	12.4033	12.4033	0.1500
Sex	1	58.9633	58.9633	0.7132
Methods x Grade Levels	2	880.6059	440.3027	5.3260**
Methods x Sex	2	115.0068	57.5034	0.6956
Grade Levels x Sex	1	10.0833	10.0833	0.1220
Methods x Grade Levels x Sex	2	237.5164	118.7582	1.4365
Within Cell Error	288	23,808.9961	82.6701	
Totals	299	25,335.3008		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

48.73, and 48.13, respectively. The combined post-test means for students who experienced Treatments A, B, and C were 48.50, 48.77, and 46.34, respectively. Thus, the combined mean gains for Groups A, B, and C were -0.06, 0.04, and -1.79, respectively. The differences between the combined mean gains in student achievement were tested and found to be no greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory, is provided in the Appendix.[25]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{25}) of no significant difference in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory among the groups of students receiving instruction by Treatments A, B, and C was accepted.

Student Achievement of the Total Self Awareness Concept and Methods of Instruction--B. Acceptance of the null hypothesis (Ho_{25}) negated the necessity for a multiple comparison of the differences between the combined mean gains in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory. Based on the results of the null hypothesis (Ho_{25}), the null hypothesis (Ho_{26}) of no significant difference in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory between students who received instruction by Treatments A and C was accepted; by Treatments B and C was accepted; by Treatments A and B was accepted.

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[25] See Appendix L

The three-way analysis of variance reported in Table XXV did reveal one significant difference, and although it is not one of the original hypotheses to research, it was felt that mention of this significant difference should be made since methods are involved. The significant difference is found in methods of instruction by grade levels with regard to gains in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory. The combined mean gains in student achievement of methods by grade levels were tested and found to be greater than could be expected by chance. A more detailed description of individual and combined mean scores with regard to gains in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory, is provided in the Appendix.[26]

The multiple comparison procedure developed by Newman-Keuls[27] was then applied to the differences between the combined mean gains in an effort to ascertain whether or not one treatment by grade level was more effective than another with respect to gains in student achievement of the total self awareness concept as measured by the Self Appraisal

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[26] See Appendix L

[27] *Ibid*.

Inventory. Table XXVI provides the results of a multiple comparison analysis for gains in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory.

On the basis of the multiple comparison of differences between combined mean gains, a null hypothesis of no significant difference in student achievement of the total self awareness concept as measured by the Self Appraisal Inventory between students who received instruction by Treatments A-4 and C-4 was accepted; by Treatments B-4 and C-4 was rejected; by Treatments A-4 and B-4 was accepted; by Treatments A-5 and C-5 was accepted; by Treatments B-5 and C-5 was accepted; by Treatments A-5 and B-5 was accepted.

Student Achievement of the Career Decision Making Concept. When the differences between the gain scores for students who had received instruction by the three treatments with regard to the career decision making concept were tested by a three-way analysis of variance, no significant difference was found. Table XXVII provides the results of the three-way analysis of variance for gains in student achievement of the career decision making concept as measured by the Everyday Decision Making Instrument. An example of this instrument is provided in the Appendix.[28] The combined pre-test means for students exposed to Treatments A, B, and C were 70.91, 70.24, and 70.28, respectively. The combined

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[28] See Appendix G

TABLE XXVI

MULTIPLE COMPARISON OF STUDENT ACHIEVEMENT OF THE+ TOTAL SELF AWARENESS CONCEPT BY METHOD AND GRADE LEVEL

Ordered Means Method/Grade	Ordered Means--Method/Grade						t-Values for Significance	
	C-4	B-5	A-4	A-5	C-5	B-4		
	-4.02	-1.92	-0.40	0.28	0.44	2.00	.05	.01
C-4 -4.02		-2.10	-3.62	4.30	4.46	6.02*	5.27	6.26
B-5 -1.92			-1.52	2.20	2.36	3.92	5.04	6.06
A-4 -0.40				0.68	0.84	2.40	4.74	5.79
A-5 0.28					0.16	1.72	4.32	5.40
C-5 0.44						1.56	3.60	4.76
B-4 2.00								

*Significance at the .05 level.

**Significance at the .01 level.

+Self Appraisal Inventory

TABLE XXVII

THREE-WAY ANALYSIS OF VARIANCE FOR GAINS IN STUDENT ACHIEVEMENT OF THE EVERYDAY DECISION MAKING CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	D.F.	S.S.	Variance	F
Methods	2	420.1862	210.0931	1.8106
Grade Levels	1	185.6530	185.6530	1.6000
Sex	1	5.3333	5.3333	0.0460
Methods x Grade Levels	2	176.1870	88.0935	0.7592
Methods x Sex	2	222.8266	111.4133	0.9602
Grade Levels x Sex	1	185.6533	185.6532	1.6000
Methods x Grade Levels x Sex	2	129.0171	64.5085	0.5559
Within Cell Error	288	33,417.3164	116.0323	
Totals	299	34,742.1719		

F-ratios required for significance at the .05 level are 3.88 for 1 and 288 degrees of freedom, and 3.03 for 2 and 288 degrees of freedom. F-ratios required for significance at the .01 level are 6.73 for 1 and 288 degrees of freedom, and 4.68 for 2 and 288 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

post-test means for students who experienced Treatments A, B, and C were 70.15, 72.34, and 70.54, respectively. Thus, the combined mean gains for Groups A, B, and C were -0.76, 2.10, and 0.26, respectively. The differences between the combined mean gains in student achievement of the career decision making concept as measured by the Everyday Decision Making Instrument were tested and found to be no greater than could be expected by chance. A more detailed description of individual and combined mean scores, with regard to gains in student achievement of the career decision making concept as measured by the Everyday Decision Making Instrument is provided in the Appendix.[29]

On the basis of the results of the three-way analysis of variance, the null hypothesis (Ho_{27}) of no significant difference in student achievement of the career decision making concept as measured by the Everyday Decision Making Instrument among the three groups of students receiving instruction by Treatments A, B, and C was accepted.

Student Achievement of the Career Decision Making Concept and Methods of Instruction. Acceptance of the null hypothesis (Ho_{27}) negated the necessity for a multiple comparison of the differences between the combined mean gains in student achievement of the career decision making concept. Based on the results of the null hypothesis (Ho_{27}), the null hypothesis (Ho_{28}) of no significant difference in student achievement of the career decision making concept between students who received instruction by Treatments A and C was accepted; by Treatments B and C was accepted; by Treatments A and B was accepted.

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[29] See Appendix L

Teacher Achievement of Selected Career Awareness Concepts. A t-test for correlated observations revealed a significant difference between the pre-test and post-test scores with regard to gains in teacher achievement of selected career awareness concepts as measured by the instrument developed by the researcher. This instrument contained 50 objective items designed to measure selected career awareness concepts. An example of this instrument is provided in the Appendix.[30] Table XXVIII provides the results of the t-test for gains in teacher achievement of selected career awareness concepts.

The pre-test mean for the six teachers was 28, while the post-test mean was 38.33, yielding a combined mean gain of 10.33. The difference between the pre-test and post-test means revealed a t-value of 6.26, which was found to be greater than could be expected by chance.

On the basis of the results of the t-test for correlated observations, the null hypothesis (Ho_{29}) of no significant difference in teacher achievement of selected career awareness concepts among teacher pre-test and post-test scores was rejected.

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[30] See Appendix I

TABLE XXVIII

t-TEST FOR CORRELATED OBSERVATIONS OF TEACHER ACHIEVEMENT ON SELECTED CAREER AWARENESS CONCEPTS

Teachers	Pre-Test Score	Post-Test Score	Sum of Differences	Square of Differences
A	26	37	11	121
B	28	42	14	196
C	29	35	6	36
D	29	37	8	64
E	33	40	7	49
F	23	39	16	256
N=6	$\bar{X}_1=28$	$\bar{X}_2=38.33$	$\Sigma D=62$	$\Sigma D^2=722$

$$t=\frac{\bar{X}_2-\bar{X}_1}{\sqrt{\dfrac{\Sigma D^2-\dfrac{(\Sigma D)^2}{N}}{N(N-1)}}} \quad \therefore\ t=6.26^{**}$$

Critical values of t for significance at the .05 level are 2.57 for 1 and 5 degrees of freedom. Critical values of t for significance at the .01 level are 4.03 for 1 and 5 degrees of freedom.

*Significance at the .05 level.

**Significance at the .01 level.

CONCLUSIONS, IMPLICATIONS AND PROBLEMS FOR FURTHER STUDY

Conclusions

To the extent that the data and findings resulting from the research procedure employed in this study are valid and representative of fourth and fifth grade students in similar suburban areas, the following conclusions may be drawn:

Since the achievement scores of students in Groups A and B were significantly higher on selected career awareness concepts (in seven out of seven cases for Group A and in four out of seven cases for Group B) than student achievement scores of students in Group C, it may be concluded that the career cluster concept is an effective method of presenting selected career awareness concepts to fourth and fifth grade students.

Because the achievement scores of students in Groups A and B were significantly higher on selected self awareness concepts (in one out of two cases for Group A and in two out of two cases for Group B) than the student achievement scores of their counterparts in Group C, it may be concluded that the career cluster concept is an effective method of presenting selected self awareness concepts to fourth and fifth grade students.

Due to the fact that the achievement scores of students experiencing the three treatments did not differ significantly on selected career decision making skills, it was concluded that, with regard to achievement of career decision making skills, the study failed to reveal a single most effective approach to teaching the concept to fourth and fifth grade students.

Students who experienced Treatments A and B made significantly higher gains in student achievement of career awareness and self awareness than did their counterparts who experienced Treatment C. It was therefore concluded that, with regard to the achievement of career awareness and self awareness, an effective method of presenting these concepts to fourth and fifth grade students was identified.

Since the achievement scores of students in Group A were significantly higher on selected career awareness concepts (in two out of seven cases) from the achievement scores of students who experienced the career cluster concept from teachers who have received an extensive orientation to career education and who have written the units of curricular instruction based on the career cluster concept can be expected to show slightly higher gains on selected career awareness concepts than students who are taught by teachers who have received little orientation to career education and who did not write the units of curricular instruction based on the career cluster concept.

Due to the fact that the achievement scores of students who experienced Treatments A and B did not differ significantly on selected Self awareness concepts, it was concluded that, regardless of the experimental treatment used, students in Group A will not be expected to experience greater gains in self awareness than their counterparts in Group B.

Since the results of this study, based on student achievement scores, indicate that students who experienced units of curricular instruction based on the career cluster concept made significantly higher gains in selected career awareness and self awareness, this approach, as presented in this investigation, is judged to be a most effective method for presenting these concepts to fourth and fifth grade students.

Because the results of this study, based on student achievement scores, indicate that the students in Group A made slightly significant higher gains or were statistically equal to students in Group B on the two selected career education concepts presented where significant differences were found, this approach, as presented in this investigation, is judged to be the most effective method of the three treatments studied.

A summary of significant findings between treatments by selected career education concepts and measures of achievement is presented in the Appendix.[1]

Implications

In view of the findings and conclusions of this study, the following implications are presented:

[1] See Appendix M

Since the career cluster approach, which was preceeded by an extensive orientation to the concept of career education, was judged to be more effective than the other approaches employed to present selected career education concepts, school administrators should provide an orientation to the concepts of career education for their teachers so that the teachers can employ this approach in their teaching.

In an effort to bring about increased student achievement of the concepts of career education, school systems should provide a career education program for all students.

Teacher educators in the field of elementary education should make prospective elementary school teachers aware of the benefits to be derived from a career education program through classroom and laboratory experiences.

State departments of education should continue to encourage teacher education institutions to offer classroom and laboratory experiences designed to make prospective elementary school teachers aware of the benefits to be derived from a career education program.

Problems for Further Study

During the course of this investigation, a number of related problems of sufficient merit to warrant investigation presented themselves. They are as follows:

1. There is a need for studies in similar suburban areas which contrast the achievement of selected career

education concepts by students taught by the career cluster concept with those taught by the process of infusing career education concepts into the existing school curriculum.

2. There is a need for research devoted to assessing the retention of selected career education concepts. This could also be applied to the study mentioned above.

3. A similar investigation should be conducted in a similar suburban area to verify the results of this study.

4. Similar studies should be conducted in school systems of various sizes to verify the results of this data.

5. The units of curricular instruction based on the career cluster concept which were developed by the teachers should be revised and shared with other schools. The career cluster concept could be left intact and used by teachers or the concept could be infused into the existing curriculum.

6. There is a need for research devoted to assessing the effects of selected career education concepts upon the achievement of high ability students as compared with those low ability counterparts.

7. There is a need for research devoted to assessing both teacher and student attitudes toward the traditional elementary school program, a career cluster oriented elementary school program and a program which infuses the concepts of career education into the existing curriculum.

8. Research should be undertaken to study the attitude of the community toward schools which have an on-going

career education program with schools which do not utilize the concept in their curriculum.

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APPENDIX A

Daily Schedule of Workshop Activities

DAILY SCHEDULE OF WORKSHOP ACTIVITIES

TIME	MONDAY June 11	TUESDAY June 12	WEDNESDAY June 13	THURSDAY June 14	FRIDAY June 15
8:00- 8:30					
8:30- 9:00					
9:00- 9:15	Introductions and Brief Overview	Orientation to Career Ed. (con't.) B. C.E.: What It Is C. C.E. Models Funded by USOE D. Brief Discussion of Cluster Concept	Orientation to film, "Year 1999 A.D."	Humanizing the Curriculum	Toward a Philosophy of Career Education
9:15- 9:30	Enrollment		"Year 1999 A.D." Dupont Corporation	Orientation to, "I Want To Be..."	
9:30- 9:45	Career Awareness Pre-Test			"I Want To Be..." 16mm Film	Legislative Impetus for Vocational Ed.
9:45-10:00			Implications of film to Elem. School Child		Resources for Career Awareness
10:00-10:15		Rationale for Career Education	Origin, Growth and Development of Our Industrial-Technological Society	Goals of Career Education	
10:15-10:30					
10:30-10:45				Objectives of Elem. School Educatic	
10:45-11:00	Detailed Overview of In-Service Model	Basic Assumptions of Career Education		Broadening the Concept of Career Education	
11:00-11:15		Career Education Defined			
11:15-11:30		The Classroom Teacher in Career Education		The Potential of Career Education	
11:30-11:45	Career Education in Cultural Perspective		Pyramid of Culture and its Implications		
11:45-12:00					
12:00-12:30	Lunch	Lunch	Lunch	Lunch	Lunch
12:30- 1:00					
1:00- 1:15	Career Education in Cultural Perspective (con't.)	Orientation to film, "Career Education"	Relationship of Technology to Social Problems	Tentative Identification of Curricular Units	No Class Due to Thursday, June 14 Afternoon Session
1:15- 1:30		"Career Education" U.S.O.E. 16mm film			
1:30- 1:45			Social and Economic Problems of the Past Decade	Tying the Cluster Concept to Curricular Units	
1:45- 2:00	Educational Perspective--the Separate Domains				
2:00- 2:15		Implications of the Career Education Film	Occupational Clusters and Implications for Curriculum	Career Education: New Focus for Elem. Schools A. Life Career Dev. Model B. Career Decision-Making Process C. Relationship Between Human Growth & Learr and Career Choice (Dr. Norman Gysbers)	
2:15- 2:30	Orientation to Career Education (33mm slide series) A. Career Education: Where It Came From	Conflicting Career Values & the Elem. Sch.			
2:30- 2:45		Complexities of Career Decisions			
2:45- 3:00					
3:00- 4:00					
4:00- 5:00					

DAILY SCHEDULE OF WORKSHOP ACTIVITIES

TIME	MONDAY June 18	TUESDAY June 19	WEDNESDAY June 20	THURSDAY June 21	FRIDAY June 22
8:00- 8:30		Travel Time		Travel Time	
8:30- 9:00					
9:00- 9:15	Career Development: A Cooperative Thrust of the School and its Community	Field Trip to a Service-Rendering Industry Board of Trade Building	Discuss Field Trip--Career Implications	Field Trip to a Public Service Industry Mo. Public Service Co. Sibley Plant	Discuss Field Trip--Career Implications
9:15- 9:30					
9:30- 9:45	Using Community Resources		Planning for an Instructional Activity		Write Objectives for Curricular Units
9:45-10:00					
10:00-10:15		Travel Time			
10:15-10:30	Identifying Community Resources Relative to Children's Interests				
10:30-10:45		Field Trip to a Service-Rendering Industry Amoco Refinery	Subject Matter and Activities Combined		
10:45-11:00					
11:00-11:15				Lunch and Travel Time	
11:15-11:30			Final Selection of Curricular Units		
11:30-11:45	Keeping the Community Involved				
11:45-12:00					
12:00-12:30	Lunch	Lunch and Travel Time	Lunch		Lunch
12:30- 1:00					
1:00- 1:15	Communication and the Genesis		Utilizing Performance-Based Objectives A. How to Write Behavioral Objectives (Dr. James Hudson)	Field Trip to a Manufacturing Industry Allis Chalmers Plant	No Class Due to Wednesday, June 27 Afternoon Session
1:15- 1:30	Community Resource Techniques A. Resources B. Parent Involvement C. Activities D. Roleplaying & Interviewing E. Field Trip (preparation for) F. Field Trip (evaluation)				
1:30- 1:45		Field Trip to Manufacturing Industry American Can Company			
1:45- 2:00					
2:00- 2:15					
2:15- 2:30					
2:30- 2:45				Travel Time	
2:45- 3:00					
3:00- 4:00		Travel Time		Field Trip to a Manufacturing Industry Armco Steel	
4:00- 5:00					

DAILY SCHEDULE OF WORKSHOP ACTIVITIES

TIME	MONDAY June 25	TUESDAY June 26	WEDNESDAY June 27	THURSDAY June 28	FRIDAY June 29
8:00- 8:30		Travel Time			
8:30- 9:00					
9:00- 9:15	Identify and List Potential Community Resources that could Contacted for Enriching the Curricular Units	Field Trip to Service-Rendering Industries A. Gill Studios	Discuss Field Trips and their Career Implications	Personal, Economic and Social Sign of Work to Our Society (Dr. F. Milton Miller)	Work on Curricular Units
9:15- 9:30					
9:30- 9:45			Work on Curricular Units		
9:45-10:00					
10:00-10:15		Travel Time			
10:15-10:30					
10:30-10:45	Discuss Curricular Format and [illegible] Identifying and Writing Curricular Content	Field Trip to a Service-Rendering Industry Howard Needles Consulting Engineers			
10:45-11:00					
11:00-11:15					
11:15-11:30					
11:30-11:45					
11:45-12:00		Lunch and Travel Time			
12:00-12:30	Lunch		Lunch	Lunch	Lunch
12:30- 1:00		Field Trip to a Goods-Producing Industry Ford Claycomo Plant			
1:00- 1:15	Identifying and Ordering Materials to Supplement Curricular Units		Work on Curricular Units (con't.)	Work on Curricular Units	Work on Curricular Units (con't.)
1:15- 1:30					
1:30- 1:45					
1:45- 2:00					
2:00- 2:15		Travel Time	Career Education: New Roles & Responsibilities A. Program Strategies for the Infusion of Career Information B. Guidance Role in Career Education C. Librarian's Role in Career Ed. D. Administrator's Role in Career Ed. (Dr. Norman Gysbers)		
2:15- 2:30					
2:30- 2:45					
2:45- 3:00					
3:00- 4:00					
4:00- 5:00					

DAILY SCHEDULE OF WORKSHOP ACTIVITIES

TIME	MONDAY July 9	TUESDAY July 10	WEDNESDAY July 11	THURSDAY July 12	FRIDAY July 13
8:00- 8:30					
8:30- 9:00					
9:00- 9:15	**Work on Curricular Units**	Implementation of a Total Career Education Program A. Identifying Community Resources B. Writing Units of Instruction C. Affecting a Change in Attitude Toward Work and School (Dr. Glenys Unruh)	**Role of Constructional Activities in the Elementary School (Dr. W.R.-Wil-Miller)**	**Work on Curricular Units**	**Work on Curricular Units**
9:15- 9:30					
9:30- 9:45					
9:45-10:00					
10:00-10:15					
10:15-10:30					
10:30-10:45					
10:45-11:00					
11:00-11:15					
11:15-11:30					
11:30-11:45					
11:45-12:00					
12:00-12:30	**Lunch**	**Lunch**	**Lunch**	**Lunch**	**Lunch**
12:30- 1:00					
1:00- 1:15	**Work on Curricular Units (con't.)**	**Work on Curricular Units**	Research Findings In the Area of Elementary I. A.	Elem. C. Ed. Advisory Committee Meeting A. Intro. & Overview B. Basic Purpose & Goals C. "Career Education"-USOE 16mm film D. Utilization of Community Resources E. How an Advisory Committee Can Lend Assistance to Career Education	**Work on Curricular Units (con't.)**
1:15- 1:30					
1:30- 1:45			Authenticity of Materials & Processes		
1:45- 2:00			Problem Solving Through Activity		
2:00- 2:15					
2:15- 2:30			Discussion of Appropriate Activities to Use for Specific Units of Instruction		
2:30- 2:45					
2:45- 3:00					
3:00- 4:00					
4:00- 5:00					

DAILY SCHEDULE OF WORKSHOP ACTIVITIES

TIME	MONDAY July 16	TUESDAY July 17	WEDNESDAY July 18	THURSDAY July 19	FRIDAY July 20
8:00- 8:30					
8:30- 9:00					
9:00- 9:15	Work on Curricular Units	Work on Curricular Units	Work on Curricular Units	Work on Curricular Units	Work on Curricular Units
9:15- 9:30					
9:30- 9:45					
9:45-10:00					
10:00-10:15					
10:15-10:30					
10:30-10:45					
10:45-11:00					
11:00-11:15					
11:15-11:30					
11:30-11:45					
11:45-12:00					
12:00-12:30	Lunch	Lunch	Lunch	Lunch	Lunch
12:30- 1:00					
1:00- 1:15	Work on Curricular Units (con't.)	Work on Curricular Units (con't.)	Critique Performance-Based Objectives and Continue to Work on Units of Curricular Instruction	Identify Community Resources	Work on Curricular Units (con't.)
1:15- 1:30					
1:30- 1:45					
1:45- 2:00					
2:00- 2:15					
2:15- 2:30					
2:30- 2:45					
2:45- 3:00					
3:00- 4:00					
4:00- 5:00					

DAILY SCHEDULE OF WORKSHOP ACTIVITIES

TIME	MONDAY July 23	TUESDAY July 24	WEDNESDAY July 25	THURSDAY July 26	FRIDAY July 27
8:00- 8:30					
8:30- 9:00					
9:00- 9:15	Work on Curricular Units	Work on Curricular Units	Work on Curricular Units	Work on Curricular Units	Work on Curricular Units
9:15- 9:30					
9:30- 9:45					
9:45-10:00					
10:00-10:15					
10:15-10:30					
10:30-10:45					
10:45-11:00					
11:00-11:15					
11:15-11:30					
11:30-11:45					
11:45-12:00					
12:00-12:30	Lunch	Lunch	Lunch	Lunch	Lunch
12:30- 1:00					
1:00- 1:15	Critique Performance-Based Objectives and Continue to Work on Units of Curricular Instruction	Identify Community Resources	Work on Curricular Units (con't.)	Work on Curricular Units (con't.)	
1:15- 1:30					Career Awareness Post-Test
1:30- 1:45					
1:45- 2:00					
2:00- 2:15					Test Completion and Afternoon Break
2:15- 2:30					Evaluation of In-service Model A. Written B. Oral
2:30- 2:45					
2:45- 3:00					
3:00- 4:00					
4:00- 5:00					

APPENDIX B

Fourth Grade Cluster/Unit Teaching Sequence

and

Fifth Grade Cluster/Unit Teaching Sequence

FOURTH GRADE CLUSTER/UNIT TEACHING SEQUENCE

Dates	Cluster/Unit	Number of Days
Aug. 27-30	Testing	4
Sept. 4-7	Hospitality & Recreation	4
Sept. 10-14	Agri-business	5
Sept. 17-21	Environment	5
Sept. 24-28	Public Service	5
Oct. 1-4	Marine Science	4
Oct. 8-12	Construction	5
Oct. 15-19	Business & Office	5
Oct. 22-26	Communication & Media	5
Oct. 29-Nov. 2	Consumer & Homemaking	5
Nov. 5,6,7 & 9	Health	4
Nov. 12-16	Manufacturing	5
Nov. 12-21	Manufacturing	3
Nov. 26-30	Marketing & Distribution	5
Dec. 3-7	Transportation	5
Dec. 10-14	Fine Arts & Humanities	5
Dec. 17-21	Fine Arts & Humanities	5
Jan. 2-4	Personal Service	3
Jan. 7-11	Personal Service	5
Jan. 14-17	Testing	4

FIFTH GRADE CLUSTER/UNIT TEACHING SEQUENCE

Dates	Cluster/Unit	Number of Days
Aug. 27-30	Testing	4
Sept. 4-7	Environment	4
Sept. 10-14	Marine Science	5
Sept. 17-21	Hospitality & Recreation	5
Sept. 24-28	Construction	5
Oct. 1-4	Agri-business	4
Oct. 8-12	Public Service	5
Oct. 15-19	Manufacturing	5
Oct. 22-26	Marketing & Distribution	5
Oct. 29-Nov. 2	Transportation	5
Nov. 5,6,7 & 9	Personal Service	4
Nov. 12-16	Personal Service	5
Nov. 19-21	Fine Arts & Humanities	3
Nov. 26-30	Fine Arts & Humanities/Communication	5
Dec. 3-7	Communication & Media	5
Dec. 10-14	Health	5
Dec. 17-21	Consumer & Homemaking	5
Jan. 2-4	Business & Office	3
Jan. 7-11	Business & Office	5
Jan. 14-17	Testing	4

APPENDIX C

Letter of Approval

Fort Osage School District

VICTOR D. GRAGG, Superintendent

INDEPENDENCE IN 1-2235
BUCKNER 249-3156

R.R. 2 Box 978
Independence, Missouri
64056

May 15, 1973

Dr. W. A. Downs
Associate Professor of Industrial
  Arts and Technology
Central Missouri State University
Warrensburg, MO 64093

Dear Bill:

As you are aware, I am sure, the Board of Education approved your project of experimental research concerning Career Education. We are looking forward to working with you concerning this research project.

Mr. Whited indicated that the personnel to be involved with this project have wholeheartedly agreed thereby assuring us of the project.

As you develop the model concerning this project, if I can be of any assistance, please do not hesitate to contact me at any time.

Sincerely,

Vic

Victor D. Gragg
Superintendent

VDG:blb

APPENDIX D

Orientation to Career Concepts

ORIENTATIONS OF CAREER CONCEPTS

(OCC)

Barbara Fulton, Ph.D. Robert Tolsma, Ph.D.
University of Missouri--St. Louis

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ORIENTATIONS TO CAREER CONCEPTS (OCC)

WORK AWARENESS EXERCISE

THIS IS A STORY ABOUT TWO PEOPLE. THEIR NAMES ARE CINDY AND SCOTT. THEY ARE YOUR SAME AGE AND GO TO SCHOOL JUST AS YOU DO. CINDY AND SCOTT DO OTHER THINGS TOO. SOMETIMES THEY HELP PEOPLE IN THEIR FAMILY AND IN THE NEIGHBORHOOD. THE THINGS THEY DO ARE OFTEN LIKE THE WORK DONE BY ADULTS IN JOBS. YOU ARE TO FIGURE OUT WHICH JOB HAS WORK LIKE THAT WHICH CINDY AND SCOTT DO AROUND HOME AND IN THE NEIGHBORHOOD.

1. Cindy, Scott and their dad made a dog house. When they were sawing and nailing the boards they were doing work most like that of a or an _____ .

    1. carpenter
    2. journeyman
    3. designer
    4. roofer
    5. lumberman

2. Snoopy, the family dog, got into a fight with a cat. Poor Snoopy! He has scratches all over himself. Scott, Cindy and their mom washed the cuts. They put medicine and bandages on the worst ones. They were doing work most like that done by a(n) _____ .

    1. dog catcher
    2. animal farmer
    3. zoo keeper
    4. nurse
    5. veterinarian

3. Scott's dad likes to work on the family car. He changes the oil, washes the car, checks the tires, battery, and radiator. Scott helps him. They are doing work most like that of a(n) _____ .

    1. truck driver
    2. inspector
    3. auto body repairman
    4. auto mechanic
    5. gasoline service station attendant

4. Scott and Cindy's dad have decided to cement the driveway by their house. He and Scott will mix the cement, pour it into the driveway, and smooth it out. When Scott and Cindy help their dad in this way they will be doing work most like a(n) _____ .

   1. cement mixer
   2. cement mason
   3. carpenter
   4. hod carrier
   5. plasterer

5. The family has a radio but it doesn't work. Cindy and Scott's dad thinks the radio needs a new plug. He took the wires off the old plug and screwed them into a new plug. Scott helped by handing his dad the screwdriver, holding the wire which was unplugged, and throwing away the old plug. When they were fixing the radio plug Scott and his dad were doing work most like that done by a(n) _____ .

   1. radio operator
   2. dispatcher
   3. electrician
   4. radio announcer
   5. engineer

6. Scott and Cindy and their dad are building a doghouse for Snoopy. The first thing their dad did was draw the doghouse on paper. He drew lines to show how tall, how wide, and how long the house was going to be. The work Cindy and Scott's dad did when he drew the doghouse is most like the work done by a(n) _____.

   1. draftsman
   2. interior decorator
   3. clerk
   4. building inspector
   5. building construction laborer

7. Last spring Scott ordered some packages of flower seeds in the mail. He went around the neighborhood knocking on doors and trying to get people to buy flower seeds. Scott earned a nickel for each package he sold. When he did this kind of work Scott was doing work most like that done by a(n) _____ .

   1. farmer
   2. salesman
   3. florist
   4. gardner
   5. flower girl

8. Scott and Cindy have been saving money. Scott has saved two dollars and Cindy has saved three. They went to the bank with their dad and put their money in a savings account. The man who took their money was probably called a(n) _____ .

   1. collector
   2. teller
   3. broker
   4. manager
   5. dealer

9. Sometimes Cindy's and Scott's older adult friends get sick. When this happens the kids do favors for them. They go to the drug store and to the grocery store. They also help clean up their friends' houses by washing the dishes, carrying out the trash, sweeping and dusting. When they do this kind of work they are doing work most like that of a(n) _____ .

   1. companion
   2. janitor
   3. pharmacist
   4. taxi driver
   5. minister

10. Near where Scott and Cindy live are some empty lots. On some of the lots are bottles which people have thrown away. Last week a bunch of people got together to collect bottles to send away to be melted down and made into new bottles. Cindy and Scott went to the vacant lots, picked up bottles, and put them in the pile of bottles to be made new again. Picking up bottles and cleaning up the outdoors is most likely to be done by people interested in the field of _____ .

    1. agriculture
    2. oceanography
    3. biology
    4. ecology
    5. sociology

11. Cindy received a new camera for her birthday. She takes a lot of pictures. She has taken pictures of her family, of trees, flowers and even birds. When Cindy is taking pictures she is doing work most like that of a(n) _____ .

    1. florist
    2. television cameraman
    3. movie projectionist
    4. photographer
    5. artist

12. Cindy's mother wants to improve the looks of their living room. She and Cindy have looked at many kinds of curtains. They have been trying to decide on what colors go best together so they can match the curtains with the walls and floor. When Cindy and her mother plan on how they are going to change the way the living room looks they are doing work similar to that of a(n) _____ .

    1. buyer
    2. fashion designer
    3. seamstress
    4. city planner
    5. interior decorator

13. Sometimes Scott's mother washes his hair. She then lets it dry and combs it. Once in a while she trims it with the scissors. When Scott's mother does this kind of work she is doing work most like that of a(n) _____ .

    1. clipper
    2. barber
    3. manicurist
    4. scalper
    5. make-up man

14. Scott likes to help his dad around the yard. When he was smaller he used to pull weeds in the garden and pick up sticks. Now he helps by watering the lawn, digging holes for plants, and mowing the grass. When Scott does this kind of work he is doing work most like a(n) _____ .

    1. butler
    2. groundskeeper
    3. dairy farmer
    4. biologist
    5. custodian

15. Cindy helps her mother wash clothes by first sorting them into piles to be washed. After the clothes are washed she helps fold them. A couple of times her mother has let Cindy iron handkerchiefs. When Cindy does this kind of work she is doing work much like that done by a(n) _____ .

    1. scrubber
    2. maid
    3. laundryman
    4. seamstress
    5. clothing designer

16. Cindy and Scott sometimes play house. Sometimes Cindy pretends her doll Betsy is sick and she takes care of her. Cindy uses a toy thermometer to see if Betsy has a fever. When Betsy feels good Cindy gives her a bath. When Cindy plays like this with Betsy she is pretending to do work most like that of a(n) _____ .

    1. maid
    2. X-ray technician
    3. medical technologist
    4. nurse
    5. dental assistant

17. Dad has a book in which he writes down the amount of money he earns each month, the amount of money which was spent, and which items were bought. When the kids' dad writes in this book he is doing work most like that done by a(n) _____ .

    1. librarian
    2. accountant
    3. bookbinder
    4. file clerk
    5. dietician

18. Cindy and Scott help their mother make cookies by rolling out the dough, cutting the cookies out using the cookie cutter, and making the cookies look pretty. When they help their mother in this way they are doing work like that done by a _____ .

    1. salad man
    2. hostess
    3. cook
    4. baker
    5. pantry man

19. When it is very warm outside Cindy and Scott often set up a cold drink stand. People come to the stand to buy their drinks. Cindy asks them how much sugar and ice they want in their drinks. She then puts in the amount people want. Scott takes the money and puts it in a cigar box. When the kids do this kind of work they are doing work most like a(n) _____ .

    1. bartender
    2. cook
    3. conductor
    4. fruit market clerk
    5. guide

20. There is a playground near where Scott and Cindy live. Kids go there and play all kinds of games. The playground director's name is Bob. Cindy and Scott help Bob show the smaller kids how to play softball, make and fly kites, roller skate, play jacks, and things like that. When Cindy and Scott help show other kids how to play games they are doing work most like that done by a(n) _____ .

    1. park superintendent
    2. policeman
    3. physical education teacher
    4. park commissioner
    5. athlete

ORIENTATION TO CAREER CONCEPTS (OCC)

WORKER ACTIVITIES

MOST WORKERS DO MANY THINGS WHILE THEY ARE ON THE JOB. YOU ARE TO MARK THE ONE THING OR ACTIVITIES WHICH THE WORKER NAMED WOULD NOT USUALLY DO ON HIS OR HER JOB.

21. A bus driver does not:

    1. operate the controls of the bus door
    2. handle all repairs and maintenance of the bus
    3. collect fares, tokens, tickets or transfers as people enter.
    4. regulate temperature and lighting to keep passengers comfortable
    5. load and unload baggage

22. A surveyor does not:

    1. locate land lines and boundaries
    2. collect information for maps and charts
    3. measure how high a mountain or hill may be
    4. play an important part in the building of highways, bridges, and dams
    5. build highways, airfields, and bridges

23. A barber does not:

    1. cut hair
    2. give shaves
    3. give baths
    4. help people relax
    5. clean work area

24. A telephone operator does not:

    1. give information about the cost of a call
    2. make out telephone bills
    3. locate person for a caller
    4. call the police in an emergency
    5. give out telephone numbers when asked

25. A carpenter does not:

    1. put together the wood framework in buildings
    2. put in wood walls, doors, and cabinets
    3. put in wiring for lights
    4. build stairs and lay floors
    5. build forms needed to pour cement decks, columns, and walls

26. A gasoline service station attendant does not:

    1. repair wrecked cars
    2. give directions on how to find an address, street, highway
    3. check the car's oil and water
    4. check the tires to see if the air pressure is right
    5. put gasoline in cars and trucks

27. A fireman does not:

    1. connect hose lines to fire plugs
    2. give first aid
    3. clean fire trucks
    4. arrest people who start fires
    5. work as a part of a team to fight fires

28. A plumber does not:

    1. put in water and gas pipes
    2. put water heaters, bathtubs and sinks into homes and other buildings
    3. have to bend and join together pieces of pipe
    4. put in heating equipment
    5. test for water or gas leaks and repair them

29. A radio announcer does not:

    1. give the news
    2. repair the machines used to send out radio programs
    3. describe sporting events
    4. talk to people on the radio about what they are doing
    5. choose records to be played on the radio

30. A shoe repairman does not:

    1. decide the kind of shoe to be made by a shoe factory
    2. repair worn heels and soles and broken straps on all types of shoes
    3. make footwear prettier by adding buckles and bows
    4. make and repair special shoes according to a doctor's orders
    5. mend suit cases, tents, boat covers and other items

31. A secretary *does not*:

    1. schedule appointments for the boss
    2. make business decisions when the boss is out of town
    3. type papers, letters and other things for the boss
    4. arrange for airline tickets and hotel rooms for a traveling boss
    5. help see to it that typists and file clerks get the office work done

32. A recreation worker *does not*:

    1. direct events at neighborhood playgrounds and parks
    2. teach people sports such as tennis and softball
    3. plan and start recreational activities such as bowling and softball teams for company workers
    4. start and direct arts and crafts, and games for older people
    5. coach high school sports such as football and basketball

33. A farmer *does not*:

    1. get land ready for crops
    2. raise animals such as cattle, pigs, and chickens for market
    3. have to know how to make major repairs on farm machines
    4. plant and care for such things as corn, wheat, cotton, and tobacco
    5. harvest crops and take them to the market

34. An auto mechanic *does not*:

    1. remove dents from fenders and body panels or replace parts which are badly bent
    2. stop trouble from happening by checking, adjusting and changing parts of a car
    3. take a car with trouble and find the problem after listening to the motor, driving it, and/or using testing equipment
    4. adjust, repair or replace broken auto parts
    5. have to read repair manuals and parts catalogs

35. A nurse *does not*:

    1. give medicine
    2. do operations
    3. give shots
    4. take temperatures and blood pressure
    5. bathe patients, change beds, help keep sick people as comfortable as possible

36. A veterinarian does not:

    1. treat sick animals
    2. tell others how to take care of animals
    3. train animals to perform for zoos and circuses
    4. inspect meat and other foods as a part of public health programs
    5. help prevent spread of disease among animals and from animals to people

37. A post office clerk does not:

    1. sort mail according to type and address
    2. sell stamps and money orders
    3. collect mail from street mailboxes
    4. register and insure mail
    5. weigh and accept packages

38. A professor does not:

    1. teach college students
    2. advise students as to classes they should take
    3. watch over students in study halls
    4. do research and write up the results
    5. help other people on other projects in his or her field

39. A mechanical engineer does not:

    1. tell people how to build roads, harbors, airfields, tunnels, and bridges
    2. concern himself with machines which make power
    3. develop machines which produce power such as gasoline engines, steam engines, and jet and rocket engines
    4. suggest how heating and cooling machines, elevators, machine tools, printing presses and other types of machines should work
    5. find out how to make a certain machine, how much it will cost, and how it will work

40. A waitress does not:

    1. take customers' orders
    2. cook all the food served in a restaurant
    3. serve food and soft drinks
    4. make out customers' checks
    5. give quick and pleasant service to customers

ORIENTATION TO CAREER CONCEPTS (OCC)

VOCATIONAL VOCABULARY

IN THIS EXERCISE YOU ARE GIVEN A KEY WORD AND ASKED TO CHOOSE ONE OF THE FIVE FOLLOWING WORDS WHICH DOES NOT GO WITH OR MEAN THE SAME AS THE KEY WORD. WHICH OF THESE WORDS HAS A DIFFERENT MEANING AND DOES NOT GO WITH THE CAPITALIZED KEY WORD?

41. The key word is job:

    1. position
    2. employment
    3. hobby
    4. task
    5. duty

42. The key word is shift:

    1. daily working period of a group of workers
    2. the hours one works
    3. a factory party
    4. night
    5. day

43. The key word is vocation:

    1. trip
    2. work
    3. profession
    4. occupation
    5. career

44. The key word is equal opportunity employer:

    1. a company that hires both men and women
    2. a company that will hire people of all races
    3. a company that shares the extra money it makes with its workers
    4. a company that will hire people from different countries
    5. a company that hires people on the basis of their qualifications to do the job

45. The key word is entry occupation:

    1. a job which is easiest to enter
    2. a job for beginners
    3. an occupation you can get without special training beyond high school
    4. an apprenticeship
    5. an easy job

46. The key word is trade school:

    1. when one moves to a new school
    2. a school where one learns a certain kind of work
    3. a place where one learns a skilled work or craft
    4. school where one learns things like carpentry, mechanics, etc.
    5. a school you go to during or after high school

47. The key word is college:

    1. university
    2. children
    3. school
    4. adults
    5. degree

48. The key word is O.J.T.:

    1. getting work experience and training at the same time
    2. occupation of junior technician
    3. being trained while working
    4. on job training
    5. an apprenticeship

49. The key word is salary:

    1. commission
    2. pay
    3. money
    4. earnings
    5. wage

50. The key word is apprentice:

    1. helper
    2. assistant
    3. learner
    4. expert
    5. beginner

51. The key word is work:

    1. labor
    2. play
    3. job
    4. occupation
    5. employment

52. The word is play:

    1. recreation
    2. fun
    3. game
    4. toil
    5. sport

53. The word is union:

    1. association
    2. group
    3. management
    4. workers
    5. labor

54. The word is employment:

    1. job
    2. work
    3. occupation
    4. vocation
    5. money

55. The word is overtime:

    1. time and a half
    2. to check over the time to be at school
    3. pay for working extra hours
    4. working late
    5. staying after hours at work to finish a job

56. The word is C.P.A.:

    1. chief of public accountants
    2. an accountant who is licensed by the state
    3. an accountant who has passed a test
    4. an accountant the public can trust to do a good job
    5. a certified public accountant

57. The word is interest:

    1. wanting to know more about
    2. stop for a rest
    3. something one likes
    4. hobby
    5. desire to see something

58. The key word is blue collar worker:

    1. an accountant
    2. a machinist
    3. a farmer
    4. a bus driver
    5. a plumber

59. The word is income:

    1. tax
    2. earnings
    3. money
    4. pay
    5. wages

60. The word is diploma:

    1. degree
    2. an award for finishing high school
    3. a paper one receives showing he has been trained
    4. an award for perfect school attendance
    5. "sheepskin"

ORIENTATION TO CAREER CONCEPTS (OCC)

OCCUPATIONAL PICTURE ABSURDITIES

THE WORDS 'PICTURE ABSURDITIES' MEANS PICTURES WHICH ARE UNUSUAL OR STRANGE. SOME OF THE PICTURES IN THIS EXERCISE MAY HAVE SOMETHING UNUSUAL ABOUT THEM AND SOME DO NOT. IF YOU FEEL THAT THE INDIVIDUAL IN THE PICTURE IS PERFORMING SOMETHING STRANGE OR UNUSUAL FOR A PERSON IN HIS OCCUPATION, YOU SHOULD MARK 'YES' AS YOUR RESPONSE. IF YOU FEEL THAT THE INDIVIDUAL IN THE PICTURE IS PERFORMING A TASK SIMILAR TO OTHERS IN HIS OCCUPATION, YOU SHOULD MARK 'NO' AS YOUR RESPONSE.

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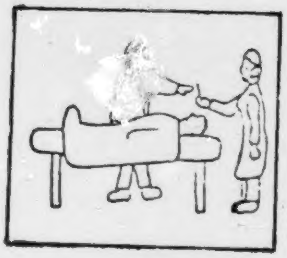

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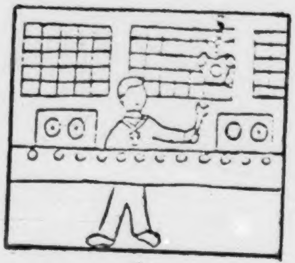

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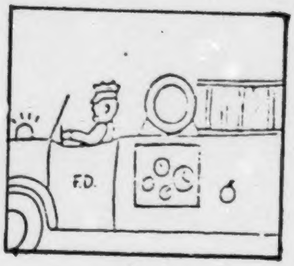

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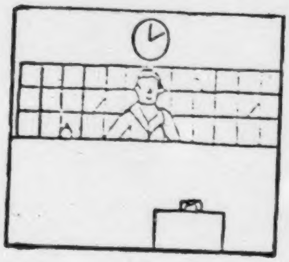

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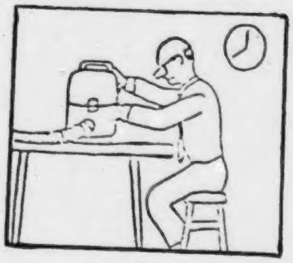

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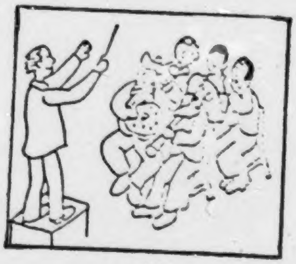

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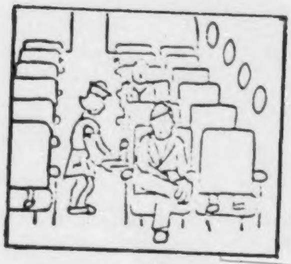

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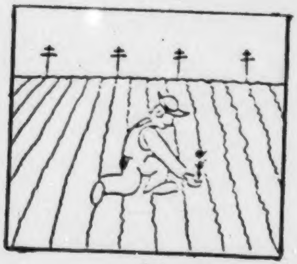

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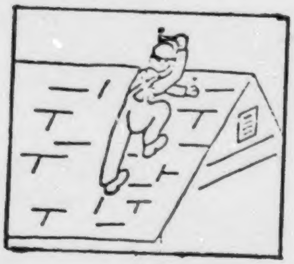

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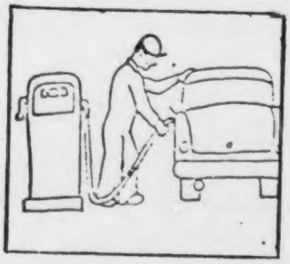

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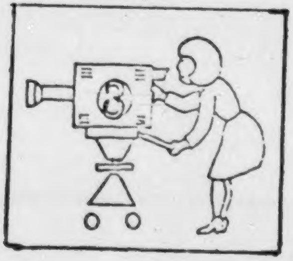

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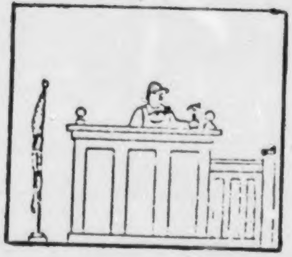

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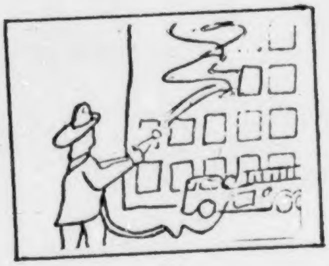

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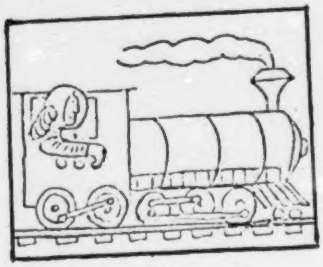

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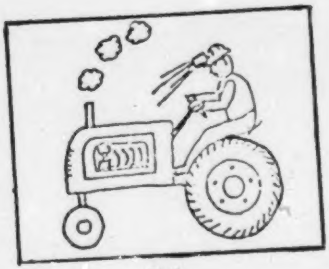

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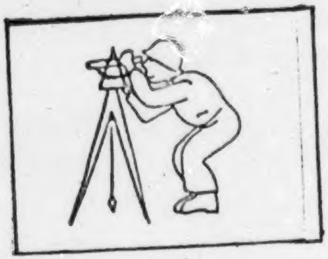

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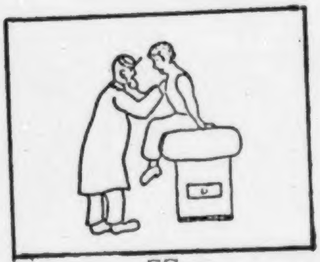

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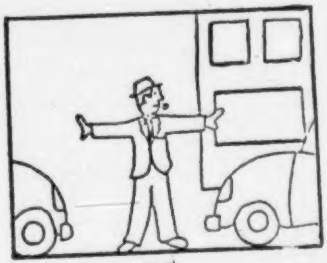

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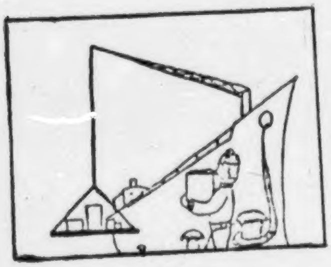

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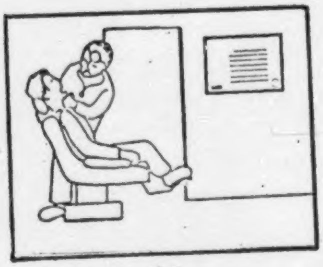

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ORIENTATION TO CAREER CONCEPTS (OCC)

OCCUPATIONAL SIMILARITIES

IN THIS EXERCISE YOU WILL BE DECIDING WHICH JOBS ARE ALIKE. FIND THE ONE JOB IN EACH LIST THAT HAS THE MOST IN COMMON WITH OR IS THE MOST LIKE THE UNDERLINED ONE.

81. The work of a plumber is most like that done by a(n):

    1. salesman
    2. carpenter
    3. lawyer
    4. actor
    5. engineer

82. The work of a judge is most like that done by a(n):

    1. lawyer
    2. salesman
    3. electrician
    4. draftsman
    5. warden

83. The work of an artist is most like that done by a(n):

    1. stenographer
    2. counselor
    3. actor
    4. hotel clerk
    5. messenger

84. The work of an engineer is most like that done by a(n)

    1. secretary
    2. chemist
    3. doctor
    4. lineman
    5. telephone operator

85. The work of a miner is most like that done by a(n):

    1. banker
    2. presser
    3. architect
    4. lumberjack
    5. musician

86. The work of a *trash collector* is most like that done by a(n):

1. typist
2. TV repairman
3. cashier
4. painter
5. janitor

87. The work of a *truck driver* is most like that done by a(n):

1. accountant
2. bus driver
3. teacher
4. doctor
5. janitor

88. The work of a *pharmacist* is most like that done by a(n):

1. doctor
2. engineer
3. farmer
4. photographer
5. brickmason

89. The work of a *banker* is most like that done by a(n):

1. mailman
2. receptionist
3. accountant
4. molder
5. veterinarian

90. The work of a *doctor* is most like that done by a(n):

1. clerk
2. mechanic
3. chef
4. artist
5. nurse

91. The work of a *secretary* is most like that done by a(n)

1. waitress
2. teacher
3. railroad conductor
4. interior designer
5. file clerk

92. The work of a brickmason is most like that done by a(n):

1. editor
2. sculptor
3. shoe-shiner
4. carpenter
5. librarian

93. The work of a baker is most like that done by a(n):

1. filling station attendant
2. grocer
3. clerk
4. doctor
5. lawyer

94. The work of a fireman is most like that done by a(n):

1. mailman
2. mechanic
3. astronaut
4. oceanographer
5. court reporter

95. The work of an astronaut is most like that done by a(n):

1. appraiser
2. pilot
3. radio operator
4. botanist
5. broker

96. The work of a doctor is most like that done by a(n):

1. miner
2. pilot
3. professor
4. shoe-shiner
5. accountant

97. The work of a mechanic is most like that done by a(n):

1. filling station attendant
2. railroad conductor
3. taxi driver
4. ship captain
5. bus driver

98. The work of a professor is most like that done by a(n)

    1. nurse
    2. pharmacist
    3. banker
    4. teacher
    5. truck driver

99. The work of a waitress is most like that done by a(n):

    1. nurse
    2. teacher
    3. carhop
    4. secretary
    5. minister

100. The work of a salesman is most like that done by a(n):

     1. engineer
     2. comptometer
     3. bookkeeper
     4. realtor
     5. inspector

ORIENTATION TO CAREER CONCEPTS (OCC)

OCCUPATIONAL TOOLS

IN THIS EXERCISE YOU WILL DECIDE WHICH TOOL GOES WITH WHICH JOB. CHOOSE THE ONE TOOL FROM THE FIVE CHOICES THAT WOULD MOST LIKELY BE USED BY THE WORKER NAMED IN EACH ITEM.

101. A watchman uses a(n):

    1. saddle
    2. flashlight
    3. vise
    4. grader
    5. plunger

102. A chef uses a(n):

    1. wrench
    2. easel
    3. skillet
    4. shovel
    5. protractor

103. A beautician uses a(n):

    1. typewriter
    2. scissors
    3. corkscrew
    4. microscope
    5. hammer

104. A fireman uses a(n):

    1. plough
    2. soldering gun
    3. typewriter
    4. vise
    5. hose

105. A scientist uses a(n):

    1. stapler
    2. beaker
    3. combine
    4. axe
    5. linotype

106. A radio announcer uses a(n):

1. riveter
2. microphone
3. lathe
4. sander
5. microscope

107. A farmer uses a(n):

1. plough
2. bulldozer
3. telescope
4. microphone
5. script

108. A secretary uses a(n):

1. slide rule
2. paint brush
3. microscope
4. dictaphone
5. baton

109. A court judge uses a(n):

1. chisel
2. pump
3. crow bar
4. gavel
5. scissors

110. A butcher uses a(n):

1. bobbin
2. metronome
3. scales
4. camera
5. tweezer

111. A waitress uses a(n):

1. tiller
2. thimble
3. apron
4. drillpress
5. computer

112. A carpenter uses a(n):

1. thread
2. stethoscope
3. hose
4. tractor
5. square

113. A surveyor uses a(n):

1. transit
2. scissors
3. typewriter
4. mop
5. thermometer

114. A teacher uses a(n):

1. jack
2. crane
3. blackboard
4. scraper
5. adding machine

115. A minister uses a(n):

1. tractor
2. slide rule
3. thermometer
4. pulpit
5. gavel

116. A maid uses a(n):

1. transit
2. clamps
3. level
4. telescope
5. vacuum cleaner

117. A doctor uses a(n):

1. flute
2. stethoscope
3. meter
4. spatula
5. gavel

118. A miner uses a(n):

1. combine
2. paint brush
3. pick
4. mop
5. scalpel

119. An architect uses a(n):

1. plunger
2. script
3. blueprint
4. metronome
5. jack

120. A pilot uses a(n):

1. map
2. saw
3. bobbin
4. welder
5. bull dozer

ORIENTATION TO CAREER CONCEPTS (OCC)

WORK STORIES

THESE ARE STORIES ABOUT BOYS AND GIRLS WHO ARE ABOUT YOUR AGE. THEY ALL GO TO SCHOOL LIKE YOU DO. THESE BOYS AND GIRLS DO OTHER THINGS. THEY HAVE LOTS OF DIFFERENT LIKES, DISLIKES, AND HOBBIES. THESE SKILLS AND HOBBIES AND INTERESTS ARE SOMETIMES RELATED TO JOBS THAT GROWNUPS DO. YOU ARE TO FIGURE OUT FROM THE LIKES AND DISLIKES OF THESE BOYS AND GIRLS WHICH GROUP OF JOBS EACH MIGHT LIKE BEST.

121. Kathy likes people and sharing her ideas with them. She enjoys art and sewing. Kathy seems always to be changing her room around--moving the table and chairs, changing the colors, and other things. Which of the following occupations (jobs) do you think Kathy might like best?

    1. photographer, camera woman, artist
    2. art teacher, music teacher, band leader
    3. artist, actor, flower arranger
    4. cartoonist, glass painter, sculptor
    5. display manager, interior decorator, set director

122. Mary is a very smart girl who makes excellent grades. Her favorite subjects are math and science. She won first prize in the local science fair last year. She reads all of the books she can find about science. Which of the following occupations (jobs) do you think Mary might like best?

    1. secretary, file clerk, receptionist
    2. teacher, nurse, social worker
    3. engineer, mathematician, scientist
    4. sales lady, cashier, bank teller
    5. librarian, newspaper reporter, writer

123. Paul loves to eat. He enjoys helping his mother in the kitchen and has some recipes that he has created. He is skilled in using his hands and prefers doing things with his hands to most school work. Which of the following occupations do you think Paul might like best?

1. bartender, waiter, busboy
2. auto mechanic, TV repairman, watch repairman
3. coffee roaster, raisin washer, honey processor
4. pastry cook, chef, baker
5. candy packer, cream dipper, fruit cutter

124. Mark is a boy who loves animals. He has many pets--dogs, cats, rabbits, fish, and others. He takes good care of his animals. He enjoys being out-of-doors and doesn't mind hot or cold weather. His favorite subject in school is science. Which of the following occupations do you think Mark might like best?

1. doctor, dentist, veterinarian
2. dog-groomer, animal-keeper, veterinarian
3. farm hand, lumberjack, miner
4. photographer, news reporter, editor
5. scientist, engineer, draftsman

125. Susan is a very pretty young lady and dresses nicely. She has already won one beauty contest for young girls. Her favorite hobby is dancing, and she is a good dancer. Which of the following occupations do you think Susan might like best?

1. model, motion picture stand-in, photographers' model
2. actress, singer, artist
3. teacher, secretary, receptionist
4. engineer, doctor, lawyer
5. cook, maid, waitress

126. Bill has several cameras and his favorite hobby is taking pictures. He keeps a scrapbook of all his photos. Bill likes people, and he likes to be where the action is. He has good finger control and good vision. Which of the following groups of occupations or jobs do you think Bill might like best?

1. teacher, social worker, counselor
2. screen reporter, cameraman, photographer
3. commercial artist, designer, sculptor
4. clerk, accountant, teller
5. stock boy, salesman, sales-manager

127. Bob gets along well with people. His favorite out-of-school activity is working as a safety patrol boy before and after school. He enjoys reading detective stories. Which of the following occupations do you think Bob might like best?

1. farmer, forest ranger, miner
2. teacher, principal, superintendent
3. carpenter, welder, plumber
4. airline pilot, test driver, locomotive engineer
5. forest fire lookout, claim adjuster, investigator

128. Ann is a girl who really likes children and babysits often to earn spending money. She plays with the younger children on the playground at school. Ann is also a good student and likes school. Which of the following jobs or occupations do you think Ann might like best?

1. secretary, file-clerk, accountant
2. waitress, maid, cook
3. elementary teacher, elementary counselor, nursery school teacher
4. high school teacher, high school principal, college teacher
5. beautician (beauty operator), nurse, sales-clerk

129. Patty enjoys school and likes people. She is active in Girl Scouts and her church. Music is her favorite subject in school. She collects records as a hobby. Which of the following occupations do you think Patty might like best?

1. choir director, band leader, music teacher
2. musician, dancer, actor
3. disc jockey, music librarian, dramatic reader
4. social worker, nursery school teacher, puppeteer
5. minister, teacher, nurse

130. Jim prefers working with his hands to studying and reading. He doesn't do very well in school, bus his favorite course at school is a crafts course because he gets to make things with his hands. He has lots of hobbies like making models of boats and airplanes, hunting, and fishing. Which of the following occupations do you think Jim might like best?

1. meat cutter, dry cleaner, shoe-repairman
2. artist, musician, actor
3. pilot, ship captain, forester
4. doctor, chemist, engineer
5. salesman, buyer, store manager

131. Jane is interested in grooming. Her hair is always clean and pretty. She enjoys combing her friends' hair and playing with her mother's make-up. Jane likes people and gets along well with them. Which of the following occupations do you think Jane might like best?

1. teacher, counselor, social worker
2. beautician (beauty operator), manicurist, cosmetics saleslady
3. nurse, medical technician, nurse's aide
4. interior decorator, artist, dress designer
5. cashier, bank teller, secretary

132. Jill makes average grades in school, but she does not like it. She enjoys sewing more than anything else. She also knits and does other things with her hands. She is looking forward to taking home economics in high school. Which of the following occupations do you think Jill might like best?

1. dress designer, model, actress
2. stewardess, nurse, hostess
3. cashier, secretary, file clerk
4. seamstress, dressmaker, alteration lady
5. teacher, counselor, social worker

133. Karen is a good student who does very well in sports. She enjoys reading, likes people, and is a very active person. She plays tennis, golf, softball, and swims. Which of the following occupations do you think she might like best?

1. librarian, sports-writer, proof-reader
2. sales-lady, buyer, model
3. receptionist, stewardess, telephone operator
4. physical education teacher, recreation director, playground director
5. nurse, lab technician, X-ray technician

134. Mike is a very friendly, good-looking boy. He sold more tickets than anyone else to the school play. He helps in his neighborhood by collecting donations (money) for the local charities. Mike picked apples from their two apple trees last summer and sold them to neighbors so that he could earn some spending money. Which of the following occupations do you think Mike might like best?

1. accountant, cashier, mathematician
2. pharmacist, chemist, physicist
3. guide, usher, messenger
4. realtor, salesman, broker
5. actor, singer, musician

135. Julie is a very smart girl who likes people and enjoys helping them. She is now taking the Red Cross First Aid Course through the Girl Scout troop. Her favorite subject in school is science. Which of the following occupations do you think Julie might like best?

1. nurse, dental hygienist, physical therapist
2. nurse's aide, cottage parent, nursemaid
3. buyer, broker, purchasing agent
4. science teacher, secretary, stenographer
5. news editor, columnist, writer

136. John loves to read and is very interested in current events. He enjoys being in school plays and has a good clear speaking voice. Although he cannot sing well, he enjoys listening to music. Which of the following groups of occupations or jobs do you think John might like best?

1. radio announcer, disc jockey, master of ceremonies
2. actor, singer, music director
3. sports announcer, coach, recreation director
4. dancer, model, physical education teacher
5. musician, composer, writer

137. Jeff is a very strong boy. He makes very good grades in physical education classes (gym, P.E.), but his other grades are not so good. He is very good in many sports and is very healthy. His hobbies are weight-lifting, karate, and working with hot-rods (he will be glad when he is old enough to drive them). Which of the following occupations do you think Jeff might like best?

1. jockey, stunt man, wire-walker
2. pilot, train engineer, bus driver
3. physical education teacher, principal, superintendent
4. model, automobile racer, dancer
5. carpenter, brick mason, plumber

138. Sherry is an average student. She is a good swimmer and plans to take the Red Cross Life-Saving course soon. She wants to be a Life Guard at the wading pool next summer. She is also learning from her father how to shoot guns. She is quite good at this for her age. Which of the following occupations do you think Sherry might like best?

1. lawyer, judge, patent agent
2. postal inspector, coroner, umpire
3. engineer, scientist, doctor
4. matron, store detective, police woman
5. actuary, statistician, geographer

139. Ken loves to build model cars and racing sets. He reads "Hot Rod" magazine and enjoys watching and helping his dad work on the family car. Ken is very good with his hands and always seems to be building something--telegraph set, small motors, and other things. Which of the following occupations do you think Ken might like best?

1. auto mechanic, auto body-man, airplane mechanic
2. engineer, scientist, astronaut
3. carpenter, plumber, tile-setter
4. porter, valet, waiter
5. die polisher, reel man, wire inspector

140. Jerry is a very bright student and makes very good grades. He likes being with people. Jerry has a large vocabulary and enjoys the debate club at school. He reads all kinds of books. Jerry seems to win disagreements without getting angry. Which of the following occupations do you think he might like best?

1. policeman, fireman, mailman
2. lawyer, judge, district attorney
3. bodyguard, night watchman, store detective
4. TV repairman, electrician, telephone lineman
5. doctor, dentist, psychiatrist

ORIENTATION TO CAREER CONCEPTS (OCC)

WORKING CONDITIONS

SOME JOBS HAVE CERTAIN KINDS OF WORKING CONDITIONS CONNECTED WITH THEM. ON SOME OF THE JOBS THE WORKER HAS TO BE ON HIS FEET A LOT, OR GET DIRTY, OR WORK LONG HOURS. HAVING TO DO THINGS LIKE THESE ON A JOB ARE CALLED THE WORKING CONDITIONS OF SOME JOBS. YOU ARE TO SELECT THE JOB WHICH MOST LIKELY HAS THE WORKING CONDITION DESCRIBED.

141. In which one of the following jobs is the worker most often to be working in an AWKWARD OR UNUSUAL POSITION?

1. tool and die maker
2. maid
3. plumber
4. farmer
5. key punch operator

142. Which one of the following jobs is most likely to allow the worker to have the SAME HOURS of work day after day?

1. lawyer
2. musician
3. doctor
4. personnel man
5. forester

143. In which one of the following jobs is the worker most likely to be STANDING OR WALKING FOR LONG PERIODS?

1. bookkeeper
2. photographer
3. veterinarian
4. draftsman
5. machinist

144. Which one of the following jobs is the worker most likely to have to do HEAVY LIFTING?

1. meat cutter
2. painter
3. over-the-road truck driver
4. commercial artist
5. actor

145. In which one of the following jobs is the work most likely to be done UNDER PRESSURE to get the job done in a hurry?

1. accountant
2. X-ray technician
3. telephone operator
4. salesman
5. farmer

146. Which one of the following jobs is most likely to be done in an AWKWARD WORKING POSITION?

1. waitress
2. painter
3. auto mechanic
4. detective
5. shoe repairman

147. In which one of the following jobs is the worker most likely to have TO HURRY to get the work done?

1. meat cutter
2. dental hygienist
3. musician
4. commercial artist
5. shoe repairman

148. Which one of the following jobs is most likely to be done in an UNCLEAN PLACE?

1. automobile mechanic
2. forester
3. cashier
4. salesman
5. detective

149. In which one of the following jobs is there often an UNPLEASANT OR BAD SMELL?

1. baker
2. dry cleaner
3. lumber jack
4. miner
5. stock broker

150. In which one of the following jobs is there often an UNPLEASANT OR BAD SMELL?

1. librarian
2. medical technician
3. beautician
4. draftsman
5. machinist

151. In which one of the following jobs is the worker likely to put in LONG HOURS?

1. lawyer
2. auto mechanic
3. truck driver
4. plumber
5. meat cutter

152. Which one of the following jobs is most likely to have the most TRAVELING?

1. geologist
2. mailman
3. lawyer
4. school principal
5. computer programmer

153. Which one of the following jobs is most likely to have the most NIGHT AND WEEKEND WORK?

1. store clerk
2. brick layer
3. typist
4. librarian
5. mailman

154. Which one of the following jobs is most likely to have the worker doing much of his work OUT DOORS?

1. auto mechanic
2. meat cutter
3. gasoline service station attendant
4. plumber
5. cashier

155. In which one of the following jobs is the work most likely to be done in a CLEAN PLACE?

1. dry cleaner
2. geologist
3. computer programmer
4. telephone installer
5. carpenter

156. Which one of the following jobs is most likely to have HEAVY LIFTING?

1. electrical engineer
2. auto mechanic
3. machinist
4. milk man
5. surveyor

157. Which one of the following jobs is most likely to have the most NIGHT AND WEEKEND WORK?

1. lawyer
2. interior decorator
3. banker
4. dairy farmer
5. counselor

158. Doing which one of the following jobs is the worker most likely to get CUTS AND BRUISES?

1. printer
2. dry cleaner
3. auto mechanic
4. veterinarian
5. painter

159. Which one of the following jobs is most likely to have the worker STANDING OR WALKING FOR LONG PERIODS OF TIME?

1. painter
2. lawyer
3. business machine repairman
4. musician
5. taxicab driver

160. Which one of the following jobs is most likely done in a CLEAN PLACE?

1. plumber
2. meat cutter
3. brick layer
4. forester
5. carpenter

ORIENTATION TO CAREER CONCEPTS (OCC)

OCCUPATIONAL TRAINING

THIS EXERCISE HAS TO DO WITH HOW LONG IT TAKES FOR THE WORKER TO LEARN TO DO A JOB. FOR SOME JOBS THE TRAINING TIME IS SHORT. FOR OTHER JOBS IT IS LONG. YOU ARE TO CHOOSE THE AMOUNT OF TIME YOU THINK IS MOST OFTEN NEEDED FOR THE WORKER TO LEARN TO DO EACH JOB LISTED. IF YOU THINK THE JOB MOST OFTEN TAKES A TRAINING PROGRAM ON THE JOB, IN AN APPRENTICESHIP, IN HIGH SCHOOL, OR IN ANY OTHER SHORT TRAINING PROGRAM LASTING ONE YEAR OR LESS YOU ARE TO MARK RESPONSE NUMBER ONE AS YOUR ANSWER. IF THE JOB MOST OFTEN TAKES MORE THAN ONE YEAR AND MAYBE EVEN AS MUCH AS TWO YEARS TO LEARN THEN YOU WOULD MARK RESPONSE NUMBER TWO AND SO ON. THE DIFFERENT TRAINING TIMES ARE AS FOLLOWS: ONE. THE WORKER CAN BE TRAINED ON THE JOB, BY APPRENTICESHIP, IN HIGH SCHOOL OR IN OTHER SHORT TRAINING PROGRAMS LASTING FOR ONE YEAR OR LESS. TWO. IT TAKES MORE THAN ONE YEAR AND MAYBE AS MANY AS TWO YEARS OF TRAINING IN A SCHOOL OR COLLEGE TO LEARN TO DO THE JOB. THREE. IT TAKES MORE THAN TWO YEARS AND MAYBE AS MANY AS FOUR YEARS OF TRAINING IN A SCHOOL OR COLLEGE TO LEARN TO DO THE JOB. FOUR. IT TAKES MORE THAN FOUR YEARS OF TRAINING IN A SCHOOL OR COLLEGE TO LEARN THIS JOB. FIVE. THE TRAINING TIME FOR THIS JOB VARIES. THERE ARE MANY WORKERS WITH DIFFERENT AMOUNTS OF TRAINING WHO CAN GET HIRED TO DO THE JOB. MORE THAN ONE OF THE ABOVE RESPONSES ARE CORRECT FOR THIS KIND OF JOB.

161. PROTESTANT MINISTER. How much training time is needed to become a Protestant minister?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

162. DENTIST. How much training time is needed to become a dentist?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

163. REGISTERED NURSE. How much training time is needed to become a registered nurse?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

164. STATISTICIAN. How much training time is needed to become a statistician?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

165. METEOROLOGIST. How much training time is needed to become a meteorologist?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

166. CHEMIST. How much training time is needed to become a chemist?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

167. MUSICIAN. How much training time is needed to become a musician?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

168. DRAFTSMAN. How much training time is needed to become a draftsman?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

169. SOCIAL WORKER. How much training time is needed to become a social worker?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

170. CASHIER. How much training time is needed to become a cashier?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

171. COOK. How much training time is needed to become a cook?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

172. POLICE OFFICER. How much training time is needed to become a police officer?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

173. TRUCK DRIVER. How much training time is needed to become a truck driver?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

174. KEYPUNCH OPERATOR. How much training time is needed to become a keypunch operator?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

175. PRIEST. How much training time is needed to become a priest?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

176. TOOL AND DIE MAKER. How much training time is needed to become a tool and die maker?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

177. APPLIANCE SERVICEMAN. How much training time is needed to become an appliance serviceman?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

178. MEAT CUTTER. How much training time is needed to become a meat cutter?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

179. MERCHANT MARINE OFFICER. How much training time is needed to become a merchant marine officer?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

180. LOCOMOTIVE ENGINEER. How much training time is needed to become a locomotive engineer?

1. on the job, apprenticeship or in high school training program for one year or less
2. more than one year, maybe even as many as two years of training
3. more than two years, maybe even as many as four years of training
4. more than four years of training
5. training time varies. More than one of the above answers is correct.

ORIENTATION TO CAREER CONCEPTS (OCC)

WORKERS' EARNINGS

ONE OF THE REASONS THAT PEOPLE WORK IS TO EARN MONEY. YOU ARE TO ANSWER THE FOLLOWING QUESTIONS ABOUT HOW MUCH MONEY WORKERS IN DIFFERENT JOBS EARN.

181. Which of these workers would most often earn the most money?

    1. auto mechanic
    2. TV and radio repairman
    3. auto body repairman
    4. diesel mechanic
    5. mechanical engineer

182. Which one of these workers would earn the most money?

    1. bulldozer operator
    2. painter
    3. plasterer
    4. machine tool operator
    5. architect

183. Which one of these workers would earn the least money?

    1. bulldozer operator
    2. painter
    3. plasterer
    4. machine tool operator
    5. architect

184. Which of these workers would earn the least money when he first got his job?

    1. bellman
    2. hotel manager
    3. mail carrier
    4. bank officer
    5. railroad brakeman

185. Which one of these workers would make the most money?

    1. accountant
    2. minister
    3. forester
    4. range manager
    5. professor

186. Which of these workers would earn the least money?

1. auto mechanic
2. TV and radio repairman
3. auto body repairman
4. diesel mechanic
5. mechanical engineer

187. Which one of these workers would make the most money when he has had several years experience?

1. teacher
2. dentist
3. doctor
4. librarian
5. engineer

188. Which one of these workers would earn the least money?

1. doctor
2. dentist
3. registered nurse
4. sanitarian
5. dietician

189. Which one of these workers would earn the most money?

1. barber
2. waiter
3. policeman
4. firefighter
5. FBI special agent

190. Who would earn the most money?

1. plumber
2. appliance serviceman
3. assembler
4. watch repairman
5. taxi driver

191. Which one of the following workers would make the least money after all workers have been working for several years?

1. teacher
2. dentist
3. doctor
4. librarian
5. engineer

192. Which one of these workers would earn the most money?

1. doctor
2. dentist
3. registered nurse
4. sanitarian
5. dietician

193. Which one of these workers would earn the least money?

1. barber
2. waiter
3. policeman
4. firefighter
5. FBI special agent

194. Which one of the following workers would make the most money when he first started his job?

1. stock boy
2. newspaper delivery boy
3. messenger
4. telephone operator
5. shoe shine man

195. Which one of these workers would make the least money?

1. accountant
2. shoe repairman
3. forester
4. range manager
5. professor

196. Which of these workers would earn the most money when he first got his job?

1. bellman
2. chambermaid
3. waiter
4. housekeeper
5. hotel manager

197. Which one of these workers would earn the most money when he first got his job?

1. railroad brakeman
2. taxi driver
3. station agent
4. railroad clerk
5. track workers

198. Which one of these workers would earn the most money?

1. telephone lineman
2. telephone installer
3. telephone operator
4. bank clerk
5. pilot

199. Which worker would earn the least money?

1. telephone lineman
2. telephone installer
3. bank clerk
4. railroad brakeman
5. pilot

200. Which one of these workers would earn the least money?

1. plumber
2. appliance serviceman
3. assembler
4. watch repairman
5. maid

APPENDIX E

How I See Myself

HOW I SEE MYSELF

Institute for Development of Human Resources
University of Florida--Gainesville

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HOW I SEE MYSELF

Directions: Today we are going to do a different kind of exercise. Let me emphasize that this is not a test to see how much you know or do not know about something. These questions are about you. They are to learn how you see yourself most of the time. There are no right or wrong answers. We are only interested in what you think about yourself. Look at Item Number 1. On one side it has "I get mad easily and explode," and on the other side it has "Nothing gets me too mad." If you get mad easily and explode, you would circle the 1. If you feel that nothing gets you too mad most of the time, you would circle the 5. If you feel that you are somewhere in between, you would circle 2, 3, or 4.

Now let's look at Question Number Two. It is different. On one side it has "I don't stay with things and finish them." If you feel that most of the time you don't stay with things and finish them, you would circle the 1. If you feel that most of the time you do stay with things and finish them, then you would circle the 5. If you feel you fit somewhere in between, you would circle 2, 3, or 4.

It is very important that you think about each statement as I read it. Remember, we want to know how you yourself feel. Remember, it is how you feel most of the time.

1.	I get mad easily and explode	1 2 3 4 5	Nothing gets me too mad
2.	I don't stay with things and finish them	1 2 3 4 5	I stay with something till I finish
3.	I'm not much good in drawing	1 2 3 4 5	I'm very good at drawing
4.	I don't like to work on committees, projects	1 2 3 4 5	I like to work with others
5.	I wish I were smaller (taller)	1 2 3 4 5	I'm just the right height
6.	I worry a lot	1 2 3 4 5	I don't worry much
7.	I wish I could do something with my hair	1 2 3 4 5	My hair is nice-looking

8.	Teachers don't like me	1 2 3 4 5	Teachers like me
9.	I haven't much energy	1 2 3 4 5	I've lots of energy
10.	I don't play games very well	1 2 3 4 5	I play games very well
11.	I wish I were heavier (lighter)	1 2 3 4 5	I'm just the right weight
12.	The girls don't like me, leave me out	1 2 3 4 5	The girls like me a lot, choose me
13.	I'm not much good at speaking before a group	1 2 3 4 5	I'm very good at speaking before a group
14.	I wish I were prettier (good looking	1 2 3 4 5	My face is pretty (good looking)
15.	I'm not much good in music	1 2 3 4 5	I'm very good in music
16.	I don't get along with teachers	1 2 3 4 5	I get along well with teachers
17.	I don't like teachers	1 2 3 4 5	I like teachers very much
18.	I don't feel at ease, comfortable inside	1 2 3 4 5	I feel very at ease, comfortable inside
19.	I don't like to try new things	1 2 3 4 5	I like to try new things
20.	I have trouble controlling my feelings	1 2 3 4 5	I can handle my feelings
21.	I don't do well in school	1 2 3 4 5	I do well in school work
22.	I don't want the boys to like me	1 2 3 4 5	I want the boys to like me
23.	I don't like the way I look	1 2 3 4 5	I like the way I look
24.	I don't want the girls to like me	1 2 3 4 5	I want the girls to like me

25.	I get sick a lot	1 2 3 4 5	I'm very healthy
26.	I don't dance well	1 2 3 4 5	I'm a very good dancer
27.	I don't write well	1 2 3 4 5	I write well
28.	I don't like to work alone	1 2 3 4 5	I like to work alone
29.	I don't know how to plan my time	1 2 3 4 5	I use my time well
30.	I'm not much good at making things with my hands	1 2 3 4 5	I'm very good at making things with my hands
31.	I wish I could do something about my skin	1 2 3 4 5	My skin is nice-looking
32.	School isn't interesting to me	1 2 3 4 5	School is very interesting
33.	I don't do arithmetic well	1 2 3 4 5	I'm real good in arithmetic
34.	I'm not as smart as the others	1 2 3 4 5	I'm smarter than most of the others
35.	The boys don't like me, leave me out	1 2 3 4 5	The boys like me a lot, choose me
36.	My clothes are not as I'd like	1 2 3 4 5	My clothes are nice
37.	I don't like school	1 2 3 4 5	I like school
38.	I wish I were built like the others	1 2 3 4 5	I'm happy with the way I am
39.	I don't read well	1 2 3 4 5	I read very well
40.	I don't learn new things easily	1 2 3 4 5	I learn new things easily

APPENDIX F

Self Appraisal Inventory

SELF-APPRAISAL INVENTORY

Instructional Objectives Exchange
Los Angeles, California

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SELF-APPRAISAL INVENTORY

Directions: Today you will be handed a type of exercise which asks how you feel about yourself and others. It is called a "Self-Appraisal Inventory," and consists of seventy-seven statements to which you are to respond "True" or "Untrue," depending upon whether a statement is true or untrue about yourself. Let me again emphasize that this is an exercise which asks how you feel about yourself and others. There are no right or wrong answers so answer each statement as honestly as you can. If you feel that a statement is true about yourself, respond with "True." If you feel that a statement is untrue about you or is false, respond with "False."

1. Other children are interested in me.
2. School work is fairly easy for me.
3. I am satisfied to be just what I am.
4. I should get along better with other children than I do.
5. I often get in trouble at home.
6. My teachers usually like me.
7. I am a cheerful person.
8. Other children are often mean to me.
9. I do my share of work at home.
10. I often feel upset in school.
11. I'm not very smart.
12. No one pays much attention to me at home.
13. I can get good grades if I want to.
14. I can be trusted.
15. I am popular with kids my own age.
16. My family isn't very proud of me.
17. I forget most of what I learn.
18. I am easy to like.
19. Girls seem to like me.

20. My family is glad when I do things with them.

21. I often volunteer to do things in class.

22. I'm not a very happy person.

23. I am lonely very often.

24. The members of my family don't usually like my ideas.

25. I am a good student.

26. I can't seem to do things right.

27. Older kids like me.

28. I behave badly at home.

29. I often get discouraged in school.

30. I wish I were younger.

31. I am friendly toward other people.

32. I usually get along with my family as well as I should.

33. My teacher makes me feel I am not good enough.

34. I like being the way I am.

35. Most people are much better liked than I am.

36. I cause trouble to my family.

37. I am slow in finishing my school work.

38. I am often unhappy.

39. Boys seem to like me.

40. I live up to what is expected of me at home.

41. I can give a good report in front of the class.

42. I am not as nice looking as most people.

43. I have many friends.

44. My parents don't seem to be interested in the things I do.

45. I am proud of my school work.

46. If I have something to say, I usually say it.
47. I am among the last to be chosen for teams.
48. I feel that my family doesn't usually trust me.
49. I am a good reader.
50. I can usually figure out difficult things.
51. It is hard for me to make friends.
52. My family would help me in any kind of trouble.
53. I am not doing as well in school as I would like tol
54. I have a lot of self control.
55. Friends usually follow my ideas.
56. My family understands me.
57. I find it hard to talk in front of the class.
58. I often feel ashamed of myself.
59. I wish I had more close friends.
60. My family often expects too much of me.
61. I am good in my school work.
62. I am a good person.
63. Others find me hard to be friendly with.
64. I get upset easily at home.
65. I don't like to be called on in class.
66. I wish I were someone else.
67. Other children think I am fun to be with.
68. I am an important person in my family.
69. My classmates think I am a poor student.
70. I often feel uneasy.
71. Other children often don't like to be with me.
72. My family and I have a lot of fun together.

73. I would like to drop out of school.
74. Not too many people really trust me.
75. My family usually considers my feelings.
76. I can do hard homework assignments.
77. I can't be depended on.

APPENDIX G

Everyday Decision Making

EVERYDAY DECISION MAKING

Missouri Evaluation Projects
University of Missouri--Columbia

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EVERYDAY DECISION MAKING

Directions: Today we are going to do a different kind of exercise. Let me emphasize that this is not a test to see how much you know or do not know about something. These questions are about how you make decisions in your daily life. There are no right or wrong answers. We are only interested in what you think about your own decisionmaking. Look at Item Number 1, which says, "I usually try to make decisions on my own." If you always try to make decisions on your own, circle the 1. If you never try to make decisions on your own, circle the 5. If you try to make decisions on your own very much, circle the 2. If you do not try to make decisions on your own very much, circle the 4. If you sometimes try to make decisions on your own, circle the 3.

1. I usually try to make decisions on my own.

always	very much	sometimes	not very much	never
1	2	3	4	5

2. If I need to find out something, I usually know where to look.

always	very much	sometimes	not very much	never
1	2	3	4	5

3. When I am faced with a problem I know how to handle it

always	very much	sometimes	not very much	never
1	2	3	4	5

4. If something puzzles or confuses me, I ask questions.

always	very much	sometimes	not very much	never
1	2	3	4	5

5. I think my ideas about what should be done are as good as anyone else's.

always	very much	sometimes	not very much	never
1	2	3	4	5

6. When someone disagrees with my ideas I find it very difficult to accept another point of view.

always	very much	sometimes	not very much	never
1	2	3	4	5

7. Before I take a stand on an issue I find out how my friends feel about it.

always	very much	sometimes	not very much	never
1	2	3	4	5

8. I need people to push me before I finish things I start.

always	very much	sometimes	not very much	never
1	2	3	4	5

9. I rely on my opinion even if it conflicts with others.

always	very much	sometimes	not very much	never
1	2	3	4	5

10. I feel capable of solving my own problems.

always	very much	sometimes	not very much	never
1	2	3	4	5

11. I know when to get other people's advice about something that is troubling me.

always	very much	sometimes	not very much	never
1	2	3	4	5

12. When I meet someone with a problem I usually find ways to help them.

always	very much	sometimes	not very much	never
1	2	3	4	5

13. When I look ahead to attending junior high school I can think of some important decisions to make.

always	very much	sometimes	not very much	never
1	2	3	4	5

14. When our group is making decisions, I prefer to wait for others to offer suggestions.

always	very much	sometimes	not very much	never
1	2	3	4	5

15. When I face a problem, I have a special person I go to for help.

always	very much	sometimes	not very much	never
1	2	3	4	5

16. I am often told that I should make better plans.

always	very much	sometimes	not very much	never
1	2	3	4	5

17. After I make a decision I often think I could have made a better decision.

always	very much	sometimes	not very much	never
1	2	3	4	5

18. If my decisions are not perfect I get bothered.

always	very much	sometimes	not very much	never
1	2	3	4	5

19. My parents have confidence that I will make good decisions.

always	very much	sometimes	not very much	never
1	2	3	4	5

20. I find myself postponing making decisions until I am forced to decide.

always	very much	sometimes	not very much	never
1	2	3	4	5

21. I am aware of decisions my parents make in their work.

always	very much	sometimes	not very much	never
1	2	3	4	5

22. I am aware of decisions my teachers make in their work.

always	very much	sometimes	not very much	never
1	2	3	4	5

23. If I were given a list of workers, I could describe the kinds of decisions they have to make.

always	very much	sometimes	not very much	never
1	2	3	4	5

24. I am aware of decisions graduating high school seniors have to make.

always	very much	sometimes	not very much	never
1	2	3	4	5

25. If I were asked, I could tell the steps I went through in making my decisions.

always	very much	sometimes	not very much	never
1	2	3	4	5

APPENDIX H

Letter to Consultants

CMSU CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG, MISSOURI 6409

July 9, 1973

Dear Consultant:

As a part of your contribution to the In-Service Career Education Model which was conducted during the summer of 1973 in the Fort Osage Public Schools, I asked each of you to submit 10 to 20 objective questions to me for use in assessing the participating teachers' awareness of careers. I have re-typed the items which you and the other consultants submitted and have enclosed a copy for your critique. As was discussed prior to your presentation, I wish to utilize your services in the capacity of a judge to select those items which you feel would be best in assessing the teachers' awareness of careers. I would like for you to mark each item as follows:

1) If you feel that an item is superior from the standpoint of assessing information about occupational awareness, please place a plus (+) to the left of the item on the blank provided.

2) If you feel that the item is of marginal significance in assessing information about occupational awareness, please do not make any mark on the blank space provided.

3) If you feel that the item does not assess information about occupational awareness, please mark a minus (-) in the blank space provided to the left of the item.

I would appreciate you completing these items at your earliest convenience and returning them to me so that I may finalize this portion of the research.

Thanks again for your contribution to the project this past summer, and I thank you ahead of time for this phase of your contribution to the project.

Sincerely,

W. A. Downs

W. A. Downs, Director
Research Project #1115

WAD/mb

APPENDIX I

Teacher Achievement Instrument

CAREER EDUCATION EXAMINATION

Career Education Research Project
Central Missouri State University

1973

CAREER EDUCATION EXAMINATION

TRUE-FALSE

Directions: Read each of the following statements carefully. If a statement is completely true, blacken box "1" which represents a TRUE response. If any part of a statement is false, blacken box "2" which represents a FALSE response. Blacken only one box for each item response. DO NOT LEAVE ANY ITEMS BLANK.

1. Societies that are marked by educational continuity are also those societies which offer a limited number of occupational choices.
2. The production of goods far outweighs the rendering of services in our post-industrial society.
3. Whereas in traditional education the content emphasis is on the past, in a career-oriented program the emphasis will be shifted to a here-and-now future orientation.
4. If properly implemented, career education would have the effect of locking students into early career choices.

MULTIPLE CHOICE

Directions: Each of the questions or incomplete statements is followed by several possible responses. You are to choose the best answer to the question or the response which best completes the statement. Blacken the box on the answer sheet corresponding to the number of the response you have chosen. Blacken only one box for each item response. DO NOT LEAVE ANY ITEMS BLANK.

5. The term, "career," refers to _____ when viewed from a career development perspective.

    a) an occupation or job
    b) one's role in society
    c) one's life style
    d) all of the above
    e) none of the above

6. Career decision-making emphasizes:

    a) making the correct choice at the correct time
    b) putting choices off until after schooling is over
    c) a series of choices over the life span
    d) a and b
    e) none of the above

7. The concept of career development places emphasis on:

   a) education through high school
   b) education through college
   c) education throughout the life span
   d) a and b
   e) none of the above

8. An individual's perception of work depends on:

   a) intellectual understanding of work
   b) experiences one has had with work
   c) attitudes one has developed toward work
   d) all of the above

9. The main difference between work and play is the:

   a) activity in which one is involved
   b) purpose of the activity
   c) intrinsic values derived from the activity
   d) extrinsic values derived from the activity

10. The initial step in curriculum planning designed to integrate the concepts of career education into curricular units of instruction for 4th and 5th grades would be ways to:

    a) provide information to the class about the 15 career clusters identified by the United States Office of Education
    b) provide information about children's future needs to earn a living
    c) seek from children information about their favorite school subjects
    d) seek from children information about their favorite out-of-school interests.

11. Recent studies indicate that more than _____ percent of the nation's labor force is employed in industrial and service-type occupations.

    a) 25
    b) 50
    c) 67
    d) 75
    e) 80

12. A complete definition of work would include which of these factors:

    a) production of goods and/or services
    b) physical and/or mental activities
    c) performed on a regular and/or scheduled basis
    d) all of the above

13. The second step in curriculum planning or the second level of consideration would be ways to:

    a) assign specific careers from the 15 career clusters to the class for investigation and reporting
    b) devise teaching strategies to gain a tentative commitment by each child to a field of work so that the teacher can attach school learnings to each child's choice
    c) involve students in identifying numerous careers that relate to their out-of-school interests
    d) communicate to children that careers depend on the content and basic skills of the various school subjects.

14. The meaning of work through the ages has:

    a) changed considerably
    b) changed somewhat
    c) remained very stable
    d) none of the above

15. People work because they need income. They also work because they:

    a) need activity
    b) need the respect of others
    c) need to express themselves creatively
    d) all of the above

16. Automation offers the following advantage(s) over mass production:

    a) yielded a better quality product
    b) less physical expenditure by man
    c) increased the volume produced
    d) a, b, and c above
    e) b and c above

17. There is approximately _____ percent of our total population of the United States living in urban and suburban areas.

    a) 33
    b) 50
    c) 80
    d) 87
    e) none of these

18. The traditional work ethic in America has:

    a) remained unchanged over the last 50 years
    b) been completely destroyed by our young worker
    c) been replaced by a concept of "work values".
    d) none of these

19. Career education has encountered several criticisms to date. All but one of the following has been cited as a criticism. The one that has not been cited as a criticism is _____ .

    a) Career education contradicts the leisure orientation of a post-industrial society.
    b) Career education doesn't solve inequality of opportunity.
    c) Career education is not well defined.
    d) Career education is person-centered, not manpower-oriented.
    e) All education should not be career education.

20. Career education should be viewed as:

    a) an alternative educational system designed to replace what now exists
    b) a concept to be integrated into the total educational system
    c) an extension of vocational education down into the lower school grades
    d) a new subject to be taught in kindergarten through grade 12
    e) none of these

21. Intrinsic values of work would not include:

    a) pride of workmanship
    b) sense of accomplishment
    c) financial rewards
    d) sense of dignity and worth

22. Career education is a relatively new term that is being used to emphasize an old concept. All but one of the following statements is consistent with the concept of career education. The response that is not consistent is response _____ .

    a) Curricular revision is necessary so as to build the school around the world of work.
    b) There needs to be increased opportunity for students to interact with men and women from a wide range of careers in and out of the school setting.

c) Students need to gain an appreciation of the dignity of many different kinds of work.
d) Students need to be provided with information about the culture and the lifestyle of careers.
e) Increased emphasis needs to be given to understanding the nature of the decision-making process.

23. Vocational enthusiasts endorse career education without reservation because they believe that it:

a) would bring us back to a cherished value, i.e., the work ethic
b) would increase the continuity between the generations
c) promises to upgrade their status in the educational community
d) responses a and c
e) all of the above

24. Academic critics have been highly suspicious of career education to date because they feel that it would:

a) not place enough emphasis on the dignity of labor
b) restrict the number of career choices available to the individual and make intelligent career decisions all but impossible.
c) not upgrade the status of vocational education as has been purported
d) responses a and b
e) all of the above

25. Extrinsic values of work would not include:

a) financial rewards
b) security
c) position in society
d) contribution to society

26. When we examine the structure of education from a cross-cultural perspective we find that the continuity factor plays a very important role in the process of human growth and learning. This factor has direct relevance to career education because it serves to explain the:

a) sequencing of a child's formal educational experiences
b) transitional process that children go through to become adults
c) informal educational experiences that children experience through the natural process of growing up
d) none of the above
e) all of the above

27. The majority of those with an abundance of leisure time:

    a) need and enjoy it
    b) are usually associated with low-income and low-status occupations
    c) do not have it by choice
    d) both b and c

28. The career education movement today is based upon the ideas that young people must be given the opportunity in school to:

    a) develop positive attitudes toward work
    b) choose a career which is commensurate with their interests and abilities
    c) choose a career that has outstanding intrinsic values
    d) both a and b

29. The meaning of work:

    a) is the same for all workers within a given industry
    b) is the same for all workers doing the same job within a given industry
    c) varies between individuals
    d) none of the above

30. In harmony with developmental theory, career education could be viewed at five general levels. Level I, which encompasses kindergarten through grade six, is generally referred to as the area of _____ .

    a) exploration
    b) involvement
    c) awareness
    d) choice
    e) none of these

31. United States Labor Department figures indicate that we can expect a _____ increase in the United States labor force during the period 1970 to 1980.

    a) 5%
    b) 13%
    c) 26%
    d) 38%
    e) 52%

32. By 1980 it is estimated that _____ of our nation's jobs will require special skills of a vocational and technical nature. These jobs will not require a college or university degree.

a) 20%
b) 35%
c) 50%
d) 65%
e) 80%

33. It has been estimated that by the year 2000, _____ of the children who are in kindergarten today will fill jobs not yet in existence.

a) 67%
b) 34%
c) 92%
d) 10%
e) 80%

34. High school graduates of today are expected to change occupations _____ times during their lifetime.

a) 7
b) 10
c) 13
d) 16
e) 19

35. The teenage unemployment rate in this country which ranges between _____ percent is the highest of any nation in the Western world.

a) 3 to 5
b) 7 to 10
c) 15 to 20
d) 25 to 32
e) 37 to 43

36. Eli Ginzberg has identified three periods in the process of choosing a career. The first period is referred to as a period where _____ choices are made. This period generally takes place before the age of eleven.

a) tentative
b) realistic
c) fantasy
d) none of the above

37. Career education can properly be thought of as a:

a) new approach which reinforces and refocuses content in ways that capitalize on children's interests
b) way of describing how a person's life style may be affected by his job
c) life-long process
d) concept designed to broaden a child's understanding of self and the world of work
e) all of the above are correct responses

38. One of the aims of career education is to:

a) accomplish an early career choice
b) upgrade the image of vocational education
c) orient students toward the dignifying of the whole spectrum of honest work
d) prepare a student for a specific job
e) none of these responses are correct

39. Which of the following would be an example of a person who is not employed in a trade?

a) bookbinder
b) boilermaker
c) buyer of grain
d) barber
e) all are examples of trades

40. The United States Office of Education recommends that careers be broken down into a study of _____ for the kindergarten through grade three levels.

a) goods-producing industries
b) service-rendering industries
c) the communications industries
d) responses a and b
e) responses a and c

41. Which of the following would be an example of a person who is not employed in the manufacturing field?

a) patternmaker
b) press operator
c) plasterer
d) welder
e) foundry worker

42. The United States Department of Labor recently reported that the average American woman is expected to spend approximately _____ years in the labor force.

a) 6
b) 10
c) 15
d) 20
e) 25

43. A generic term dealing with man's ability to change and control matter and therefore his environment is:

a) industry
b) invention
c) science
d) technology
e) none of these responses is correct

44. Women comprise approximately _____ of the total labor force in the United States.

a) 15%
b) 24%
c) 31%
d) 38%
e) 50%

45. There are approximately _____ million people who are employed in the labor force according to recent figures published by the United States Department of Labor.

a) 34
b) 56
c) 87
d) 121
e) 168

46. The vast resources of goods and services that the American people have are directly a result of _____ .

a) natural resources
b) tools
c) human energy
d) responses a and c
e) all of the above responses are correct

47. All but one of the following is an objective of career education. The one that is not an objective of the career education concept is the one stating that career education:

    a) encourages cooperative planning
    b) focuses on first-hand experiences
    c) fosters interdependence among peers
    d) focuses on group norms in instructional methods
    e) all are objectives of career education

48. Which of the following would be an example of a person who is not employed in one of the public services?

    a) police officer
    b) postal employee
    c) firefighter
    d) cook
    e) truck driver

49. The American male spends a good percentage of his life time engaged in an activity called, "work". For each ten years since 1850, man has increased his output per hour of work an average of _____ , which is a tribute to his inventive genius and his technology.

    a) 18%
    b) 25%
    c) 42%
    d) 66%
    e) 85%

50. Man's systematic effort to produce the necessities of life, including the production or manufacturing of goods and services through established procedures and the use of available materials, tools, and processes is referred to as _____ .

    a) industry
    b) invention
    c) science
    d) technology
    e) none of the above responses are correct

APPENDIX J

Data Format Sheet

FORT OSAGE CAREER EDUCATION PROJECT

Field		Columns
School/Method		1
▨		
Grade Level		2
▨		
Sex		3
▨		
Student Identification Number		4 5 6
▨		
Teacher Identification Number		7 8
▨		
Iowa Test Score		9 10 11
▨		
OCC Work Awareness	Pre	12 13
	Post	14 15
▨		
OCC Worker Activities	Pre	16 17
	Post	18 19
▨		
OCC Vocational Vocabulary	Pre	20 21
	Post	22 23
OCC Occupational Picture Absurdities	Pre	24 25
	Post	26 27
▨		
OCC Occupational Picture Similarities	Pre	28 29
	Post	30 31
▨		
OCC Occupational Tools	Pre	32 33
	Post	34 35
▨		
OCC Work Stories	Pre	36 37
	Post	38 39
▨		
OCC Working Conditions	Pre	40 41
	Post	42 43
▨		
OCC Occupational Training	Pre	44 45
	Post	46 47
OCC Workers' Earnings	Pre	48 49
	Post	50 51
▨		
OCC Total Test Scores	Pre	52 53 54
	Post	55 56 57
▨		
SELF APPRAISAL INVENTORY	Pre	58 59
	Post	60 61
▨		
HOW I SEE MYSELF	Pre	62 63 64
	Post	65 66 67
▨		
EVERYDAY DECISION MAKING	Pre	68 69
	Post	70 71

APPENDIX K

Time Schedule for the Experiment

TIME SCHEDULE FOR THE EXPERIMENT

Start Date	Activity Description	# of Weeks Required
5/1/73	Identify the participating school district and prepare lecture and handout materials over self awareness; skills involved in the career decision making process; career awareness; utilizing the cluster concept to present career information; utilization of published resource material on career education; and utilization of community resources and career instructional activities.	6
5/7/73	Randomly select experimental and control schools and identify workshop participants.	1
5/14/73	Review and select an instrument to assess student achievement of the self awareness concept; student achievement of the career decision making concept and the career awareness concept. Also develop an instrument to assess teacher achievement of the career awareness concept.	6
5/21/73	Identify and arrange field trips to goods-producing and service-rendering industries.	2
6/11/73	Gather basic data on students relative to the control variables.	14
	Pre-test workshop participants.	1
6/14/73	Consultant presentation on Career Education: New Focus for Elementary Schools.	1
6/18/73	Orientation to the cluster concept in the study of careers.	2
	Field trip to goods-producing industries.	1
6/20/73	Consultant presentation on Utilizing Performance-Based Objectives	1

Start Date	Activity Description	# of Weeks Required
6/25/73	Orientation to writing performance-based objectives to assess career information input.	1
	Selection of career curricular clusters and units of instruction.	1
	Field trip to service-rendering industries.	1
	Meeting with community leaders to discuss career education.	1
6/27/73	Consultant presentation on Career Education: New Roles & Responsibilities.	1
6/28/73	Consultant presentation on Personal, Economic and Social Signs of Work to Our Society.	1
7/9/73	Identify community resources and activities to supplement the clusters.	3
	Write units of instruction organized around the career education cluster concept.	3
	Follow-up on the development of performance-based objectives.	1
7/10/73	Consultant presentation on Implementation of a Total Career Education Program.	1
7/11/73	Consultant presentation on the Role of Constructional Activities in the Elementary School.	1
7/23/73	Post-test workshop participants.	1
7/27/73	Type cluster-oriented curricular units of instruction into a standardized format and reproduce.	5
7/30/73	Conduct analysis of project data for all hypotheses.	30
8/20/73	Orientation to career education by all participating teachers.	1

Start Date	Activity Description	# of Weeks Required
9/4/73	Pre-test students over all hypotheses	1
9/10/73	Teacher utilization of the cluster-oriented curricular units of instruction in grades four and five.	16
	Field trips for students to goods-producing and service-rendering industries.	16
1/14/74	Post-test students over all hypotheses.	1
2/15/74	Score instruments and analyze the data.	12
5/1/74	Write final report.	13

APPENDIX L

Individual and Combined Cell Means for Student Achievement

TABLE XXIX

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE TOTAL CAREER AWARENESS CONCEPT BY METHODS, GRADE LEVELS, AND SEX

	Individual Cell Means		
Source	Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	79.68	96.48	16.80
Method A x Grade 4 x Male	88.84	104.44	15.60
Method A x Grade 5 x Female	99.08	117.36	18.28
Method A x Grade 5 x Male	102.04	120.76	18.72
Method B x Grade 4 x Female	95.20	108.56	13.36
Method B x Grade 4 x Male	96.32	109.08	12.76
Method B x Grade 5 x Female	97.48	110.76	13.28
Method B x Grade 5 x Male	98.24	110.52	12.28
Method C x Grade 4 x Female	87.20	97.84	10.64
Method C x Grade 4 x Male	94.00	96.76	2.76
Method C x Grade 5 x Female	112.92	119.28	6.36
Method C x Grade 5 x Male	105.16	108.88	3.72

(continued next page)

TABLE XXIX (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE TOTAL CAREER AWARENESS CONCEPT BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	92.41	109.76	17.35
	B	96.81	109.73	12.92
	C	99.82	105.69	5.87
Grade Level	4	90.21	102.20	11.99
	5	102.49	114.60	12.11
Sex	F	95.26	108.38	13.12
	M	97.43	108.40	10.97

TABLE XXX

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORK AWARENESS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

	Individual Cell Means		
Source	Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	9.28	10.64	1.36
Method A x Grade 4 x Male	10.28	11.80	1.52
Method A x Grade 5 x Female	11.24	13.60	2.36
Method A x Grade 5 x Male	12.32	14.44	2.12
Method B x Grade 4 x Female	9.96	12.08	2.12
Method B x Grade 4 x Male	10.92	12.40	1.48
Method B x Grade 5 x Female	11.64	12.48	0.84
Method B x Grade 5 x Male	11.64	13.52	1.88
Method C x Grade 4 x Female	9.32	10.76	1.44
Method C x Grade 4 x Male	10.44	11.60	1.16
Method C x Grade 5 x Female	13.04	14.12	1.08
Method C x Grade 5 x Male	12.00	12.72	0.72

(continued next page)

TABLE XXX (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORK AWARENESS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	10.78	12.62	1.84
	B	11.04	12.62	1.58
	C	11.20	12.30	1.10
Grade Level	4	10.02	11.55	1.51
	5	11.98	13.48	1.50
Sex	F	10.75	12.28	1.53
	M	11.27	12.75	1.48

TABLE XXXI

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORKER ACTIVITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	7.04	9.20	2.16
Method A x Grade 4 x Male	8.52	10.80	2.28
Method A x Grade 5 x Female	9.04	11.08	2.04
Method A x Grade 5 x Male	8.96	11.96	3.00
Method B x Grade 4 x Female	9.32	10.00	0.68
Method B x Grade 4 x Male	8.84	10.72	1.88
Method B x Grade 5 x Female	9.68	11.08	1.40
Method B x Grade 5 x Male	9.72	10.80	1.08
Method C x Grade 4 x Female	7.04	8.64	1.60
Method C x Grade 4 x Male	8.96	9.56	0.60
Method C x Grade 5 x Female	11.40	11.72	0.32
Method C x Grade 5 x Male	9.12	10.92	1.80

(continued next page)

TABLE XXXI (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORKER ACTIVITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	8.39	10.76	2.37
	B	9.39	10.65	1.26
	C	9.13	10.21	1.08
Grade Level	4	8.29	9.82	1.53
	5	9.65	11.26	1.06
Sex	F	8.92	10.29	1.37
	M	9.02	10.79	1.77

TABLE XXXII

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE VOCATIONAL VOCABULARY CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

	Individual Cell Means		
Source	Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	5.80	7.80	2.00
Method A x Grade 4 x Male	5.60	7.28	1.68
Method A x Grade 5 x Female	8.28	11.76	3.48
Method A x Grade 5 x Male	8.00	11.96	3.96
Method B x Grade 4 x Female	7.80	9.24	1.44
Method B x Grade 4 x Male	7.24	9.28	2.04
Method B x Grade 5 x Female	8.44	9.72	1.28
Method B x Grade 5 x Male	8.04	9.28	1.24
Method C x Grade 4 x Female	5.72	7.48	1.76
Method C x Grade 4 x Male	6.76	7.76	1.00
Method C x Grade 5 x Female	8.96	11.16	2.20
Method C x Grade 5 x Male	7.20	8.60	1.40

(continued next page)

TABLE XXXII (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE VOCATIONAL VOCABULARY CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Combined Cell Means

Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	6.92	9.70	2.78
	B	7.88	9.38	1.50
	C	7.16	8.75	1.59
Grade Level	4	6.49	8.14	1.65
	5	8.15	10.41	2.26
Sex	F	7.50	9.53	2.03
	M	7.14	9.03	1.89

TABLE XXXIII

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL PICTURE ABSURDITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	13.36	13.92	0.56
Method A x Grade 4 x Male	12.40	15.16	2.76
Method A x Grade 5 x Female	13.56	15.00	1.44
Method A x Grade 5 x Male	12.72	14.76	2.04
Method B x Grade 4 x Female	13.32	13.48	0.16
Method B x Grade 4 x Male	13.96	14.08	0.12
Method B x Grade 5 x Female	10.64	11.92	1.28
Method B x Grade 5 x Male	12.24	14.04	1.80
Method C x Grade 4 x Female	12.12	13.04	0.92
Method C x Grade 4 x Male	12.88	12.72	-0.16
Method C x Grade 5 x Female	14.00	14.28	0.28
Method C x Grade 5 x Male	14.72	13.64	-1.08

(continued next page)

TABLE XXXIII (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL PICTURE ABSURDITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	13.01	14.71	1.70
	B	12.54	13.38	0.84
	C	13.43	13.42	-0.01
Grade Level	4	13.01	13.74	0.73
	5	12.98	13.94	0.96
Sex	F	12.83	13.60	0.77
	M	13.15	14.06	0.91

TABLE XXXIV

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL PICTURE SIMILARITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	8.40	11.00	2.60
Method A x Grade 4 x Male	10.24	11.36	1.12
Method A x Grade 5 x Female	10.88	12.44	1.56
Method A x Grade 5 x Male	10.36	12.48	2.12
Method B x Grade 4 x Female	10.40	12.44	2.04
Method B x Grade 4 x Male	10.12	11.32	1.20
Method B x Grade 5 x Female	11.28	12.68	1.40
Method B x Grade 5 x Male	10.68	11.80	1.12
Method C x Grade 4 x Female	8.92	11.20	2.28
Method C x Grade 4 x Male	9.72	10.12	0.40
Method C x Grade 5 x Female	12.08	12.52	0.44
Method C x Grade 5 x Male	10.00	11.08	1.08

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TABLE XXXIV (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL PICTURE SIMILARITIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	9.97	11.82	1.85
	B	10.62	12.06	1.44
	C	10.18	11.23	1.05
Grade Level	4	9.63	11.24	1.61
	5	10.88	12.17	2.29
Sex	F	10.33	12.05	1.72
	M	10.19	11.36	1.17

TABLE XXXV

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL TOOLS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means		Individual Cell Means
	Pre-Test Mean	Post-Test Mean	
Method A x Grade 4 x Female	10.12	13.16	3.04
Method A x Grade 4 x Male	11.84	14.24	2.40
Method A x Grade 5 x Female	13.32	14.88	1.56
Method A x Grade 5 x Male	14.68	17.00	2.32
Method B x Grade 4 x Female	13.40	14.56	1.16
Method B x Grade 4 x Male	12.84	15.56	2.72
Method B x Grade 5 x Female	14.16	14.88	0.72
Method B x Grade 5 x Male	13.56	15.40	1.84
Method C x Grade 4 x Female	12.56	13.48	0.92
Method C x Grade 4 x Male	13.52	13.36	-0.16
Method C x Grade 5 x Female	15.80	16.56	0.76
Method C x Grade 5 x Male	13.92	14.80	0.88

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TABLE XXXV (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL TOOLS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Variables	Categories	Combined Cell Means		Combined Cell Means
		Pre-Test Mean	Post-Test Mean	
Method	A	12.49	14.82	2.33
	B	13.49	15.10	1.61
	C	13.95	14.55	0.60
Grade Level	4	12.38	14.06	1.68
	5	14.24	15.59	1.35
Sex	F	13.23	14.59	1.36
	M	13.39	15.06	1.67

TABLE XXXVI

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORK STORIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	8.40	10.92	2.52
Method A x Grade 4 x Male	9.92	11.44	1.52
Method A x Grade 5 x Female	10.84	13.44	2.60
Method A x Grade 5 x Male	11.48	13.08	1.60
Method B x Grade 4 x Female	10.96	12.80	1.84
Method B x Grade 4 x Male	10.76	12.60	1.84
Method B x Grade 5 x Female	11.00	13.00	2.00
Method B x Grade 5 x Male	10.76	11.60	0.84
Method C x Grade 4 x Female	10.12	11.40	1.28
Method C x Grade 4 x Male	9.40	10.04	0.64
Method C x Grade 5 x Female	12.76	12.92	0.16
Method C x Grade 5 x Male	12.64	11.96	-0.68

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TABLE XXXVI (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORK STORIES CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	10.16	12.22	2.06
	B	10.87	12.50	1.63
	C	11.23	11.58	0.35
Grade Level	4	9.93	11.53	1.61
	5	11.58	12.67	1.09
Sex	F	10.68	12.41	1.73
	M	10.83	11.79	0.96

TABLE XXXVII

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORKING CONDITIONS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

	Individual Cell Means		
Source	Pre-Test Mean	Post-Test Mean	Individual Cell Mean
Method A x Grade 4 x Female	6.32	7.56	1.24
Method A x Grade 4 x Male	7.16	7.92	0.76
Method A x Grade 5 x Female	7.16	9.40	2.24
Method A x Grade 5 x Male	7.64	9.40	1.76
Method B x Grade 4 x Female	6.56	8.68	2.12
Method B x Grade 4 x Male	7.16	8.36	1.20
Method B x Grade 5 x Female	7.52	9.04	1.52
Method B x Grade 5 x Male	7.96	9.08	1.12
Method C x Grade 4 x Female	6.88	7.72	0.84
Method C x Grade 4 x Male	7.48	7.72	0.24
Method C x Grade 5 x Female	9.76	9.48	-0.28
Method C x Grade 5 x Male	8.32	9.36	1.04

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TABLE XXXVII (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORKING CONDITIONS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	7.07	8.57	1.50
	B	7.30	8.79	1.49
	C	8.11	8.57	0.46
Grade Level	4	6.93	8.00	1.07
	5	8.06	9.29	1.23
Sex	F	7.37	8.65	1.28
	M	7.62	8.64	1.02

TABLE XXXVIII

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL TRAINING CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

	Individual Cell Means		
Source	Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	4.80	4.24	-0.56
Method A x Grade 4 x Male	5.16	5.12	-0.04
Method A x Grade 5 x Female	5.64	5.96	0.32
Method A x Grade 5 x Male	6.16	5.56	-0.60
Method B x Grade 4 x Female	5.12	5.24	0.12
Method B x Grade 4 x Male	5.72	5.60	-0.12
Method B x Grade 5 x Female	5.00	6.00	1.00
Method B x Grade 5 x Male	5.12	5.12	0.00
Method C x Grade 4 x Female	5.40	5.20	-0.20
Method C x Grade 4 x Male	5.40	5.20	-0.20
Method C x Grade 5 x Female	5.40	5.68	0.28
Method C x Grade 5 x Male	6.20	5.88	-0.32

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TABLE XXXVIII (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE OCCUPATIONAL TRAINING CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	5.44	5.22	-0.22
	B	5.24	5.49	0.25
	C	5.60	5.49	-0.11
Grade Level	4	5.27	5.10	-0.17
	5	5.59	5.70	0.11
Sex	4	5.23	5.39	0.16
	5	5.63	5.42	-0.21

TABLE XXXIX

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORKERS' EARNINGS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means		Individual Cell Means
	Pre-Test Mean	Post-Test Mean	
Method A x Grade 4 x Female	6.16	8.48	2.32
Method A x Grade 4 x Male	7.72	9.32	1.60
Method A x Grade 5 x Female	9.12	9.80	0.68
Method A x Grade 5 x Male	9.40	10.12	0.72
Method B x Grade 4 x Female	8.32	9.56	1.24
Method B x Grade 4 x Male	8.08	9.64	1.56
Method B x Grade 5 x Female	8.12	9.88	1.76
Method B x Grade 5 x Male	8.52	9.88	1.36
Method C x Grade 4 x Female	9.40	8.52	-0.88
Method C x Grade 4 x Male	8.56	8.68	0.12
Method C x Grade 5 x Female	10.12	10.44	0.32
Method C x Grade 5 x Male	10.64	10.40	-0.24

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TABLE XXXIX (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE WORKERS' EARNINGS CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	8.10	9.43	1.33
	B	8.26	9.74	1.48
	C	9.68	9.51	-0.17
Grade Level	4	8.04	9.03	0.99
	5	9.32	10.09	0.77
Sex	F	8.54	9.45	0.91
	M	8.82	9.67	0.85

TABLE XL

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT* OF THE TOTAL SELF AWARENESS CONCEPT BY METHODS, GRADE LEVELS, AND SEX

	Individual Cell Means		
Source	Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	140.84	138.12	-2.72
Method A x Grade 4 x Male	142.04	153.04	11.00
Method A x Grade 5 x Female	131.64	145.84	14.20
Method A x Grade 5 x Male	137.76	139.32	1.56
Method B x Grade 4 x Female	144.24	141.44	-2.80
Method B x Grade 4 x Male	140.04	140.64	0.60
Method B x Grade 5 x Female	133.60	150.60	17.00
Method B x Grade 5 x Male	137.80	139.96	2.16
Method C x Grade 4 x Female	147.16	146.04	-1.12
Method C x Grade 4 x Male	141.96	140.00	-1.96
Method C x Grade 5 x Female	148.40	144.72	-3.68
Method C x Grade 5 x Male	135.40	130.36	-5.04

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*How I See Myself Inventory

TABLE XL (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT* OF THE TOTAL SELF AWARENESS CONCEPT BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	138.07	144.08	6.01
	B	138.92	143.16	4.24
	C	143.23	140.28	-2.95
Grade Level	4	142.71	143.21	0.50
	5	137.43	141.80	4.37
Sex	F	140.98	144.46	3.48
	M	139.17	140.56	1.39

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*How I See Myself Inventory

TABLE XLI

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT* OF THE TOTAL SELF AWARENESS CONCEPT BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	46.52	44.80	-1.72
Method A x Grade 4 x Male	50.08	51.00	0.92
Method A x Grade 5 x Female	49.04	50.08	1.04
Method A x Grade 5 x Male	48.60	48.12	-0.48
Method B x Grade 4 x Female	49.52	52.28	2.76
Method B x Grade 4 x Male	45.72	46.96	1.24
Method B x Grade 5 x Female	52.80	50.56	-2.24
Method B x Grade 5 x Male	46.88	45.28	-1.60
Method C x Grade 4 x Female	51.88	47.64	-4.24
Method C x Grade 4 x Male	46.92	43.12	-3.80
Method C x Grade 5 x Female	51.04	49.16	-1.88
Method C x Grade 5 x Male	42.68	45.44	2.76

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*Self Appraisal Inventory

TABLE XLI (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT* OF THE TOTAL SELF AWARENESS CONCEPT BY METHODS, GRADE LEVELS, AND SEX

		Combined Cell Means		
Variables	Categories	Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	48.56	48.50	-0.06
	B	48.73	48.77	0.04
	C	48.13	46.34	-1.79
Grade Level	4	48.44	47.63	-0.81
	5	48.51	48.11	-0.40
Sex	F	50.13	49.08	-1.05
	M	46.81	46.65	-0.16

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*Self Appraisal Inventory

TABLE XLII

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE EVERYDAY DECISION MAKING CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Source	Individual Cell Means Pre-Test Mean	Post-Test Mean	Individual Cell Means
Method A x Grade 4 x Female	67.64	66.44	-1.20
Method A x Grade 4 x Male	66.16	69.56	3.40
Method A x Grade 5 x Female	75.36	72.88	-2.48
Method A x Grade 5 x Male	74.48	71.72	-2.76
Method B x Grade 4 x Female	69.36	71.20	1.84
Method B x Grade 4 x Male	72.64	75.76	3.12
Method B x Grade 5 x Female	68.92	72.56	3.64
Method B x Grade 5 x Male	70.04	69.84	-0.20
Method C x Grade 4 x Female	69.40	70.76	1.36
Method C x Grade 4 x Male	69.84	69.24	-0.60
Method C x Grade 5 x Female	70.04	70.88	0.84
Method C x Grade 5 x Male	71.84	71.28	-0.56

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TABLE XLII (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT ACHIEVEMENT OF THE EVERYDAY DECISION MAKING CONCEPT OF CAREER AWARENESS BY METHODS, GRADE LEVELS, AND SEX

Variables	Categories	Combined Cell Means Pre-Test Mean	Post-Test Mean	Combined Cell Means
Method	A	70.91	70.15	-0.76
	B	70.24	72.34	2.10
	C	70.28	70.54	0.26
Grade Level	4	69.17	70.49	1.32
	5	71.78	71.53	-0.25
Sex	F	70.12	70.79	0.67
	M	70.83	71.23	0.40

TABLE XLIII

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT GRADE LEVEL EQUIVALENCY FOR THE IOWA TEST OF BASIC SKILLS (FORM 5) BY METHODS, GRADE LEVELS, AND SEX

Individual Cell Means

Source	Individual Cell Means
Method A x Grade 4 x Female	3.832
Method A x Grade 4 x Male	4.124
Method B x Grade 4 x Female	4.088
Method B x Grade 4 x Male	3.998
Method C x Grade 4 x Female	4.016
Method C x Grade 4 x Male	3.996
Method A x Grade 5 x Female	4.912
Method A x Grade 5 x Male	4.604
Method B x Grade 5 x Female	5.216
Method B x Grade 5 x Male	4.632
Method C x Grade 5 x Female	5.176
Method C x Grade 5 x Male	4.580

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TABLE XLIII (continued)

INDIVIDUAL AND COMBINED CELL MEANS FOR STUDENT GRADE LEVEL EQUIVALENCY FOR THE IOWA TEST OF BASIC SKILLS (FORM 5) BY METHODS, GRADE LEVELS, AND SEX

Variables.	Categories	Combined Cell Means	Combined Cell Means
		Grade 4	Grade 5
Method	A	3.978	4.758
	B	4.038	4.924
	C	4.006	4.878
Grade Level	4	4.009	----
	5	----	4.853
Sex	F	3.979	5.101
	M	4.039	4.605

APPENDIX M

Summary of Significant Findings Between Treatments

TABLE XLIV

SUMMARY OF SIGNIFICANT FINDINGS BETWEEN TREATMENTS+ BY SELECTED CAREER EDUCATION CONCEPTS AND MEASURES OF ACHIEVEMENT

Concept/Achievement Measure	A and C	B and C	A and B	B and A	C and A	C and B
Career Awareness Concept						
Orientation to Career Concepts (Total)	**	**	*	0	0	0
Work Awareness	None of the three treatments were significant					
Worker Activities	**	0	**	0	0	0
Vocational Vocabulary	*	0	*	0	0	0
Occupational Picture Absurdities	**	0	0	0	0	0
Occupational Picture Similarities	None of the three treatments were significant					
Occupational Tools	**	*	0	0	0	0
Work Stories	**	**	0	0	0	0
Working Conditions	*	*	0	0	0	0
Occupational Training	None of the three treatments were significant					
Workers' Earnings	**	**	0	0	0	0
Self Awareness Concept						
How I See Myself	**	*	0	0	0	0
Self Appraisal Inventory	0	*	0	0	0	0
Career Decision Making Concept						
Everyday Decision Making	None of the three treatments were significant					

+NOTE: *Treatment on the left proved to be significantly better than the treatment on the right at the .05 level; **Treatment on the left proved to be significantly better than the treatment on the right at the .01 level; 0 Treatment on the left was not significantly better than the treatment located on the right side.

APPENDIX N

Definition of Terms

Definition of Terms

Learning is a relatively permanent behavior change which is brought about as a result of experience. Learning refers to a complicated process through which a child responds physically, intellectually, and emotionally as a total person to a whole situation. To learn, the learner must experience; he must interact with the world in which he lives; he cannot remain passive. In other words, learning depends upon his doing something, although his doing need not always be overt.[30] As used in this study, learning refers to behavioral changes in the selected career education areas of career awareness, self awareness, and career decision making skills which were brought about as the result of the instructional method used.

Achievement denotes the accomplishment of proficiency of performance in a given skill or body of knowledge.[31] As used in this study, achievement refers to the acquisition of information in the selected career education areas of career awareness, self awareness, and career decision making skills. The achievement of students in the areas of career awareness, self awareness, and career decision making skills was measured by the use of standardized pre-test and post-test instruments while teacher achievement of the career awareness concept of career education was measured by the use of an objective pre-test and post-test developed by the researcher.

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[30] Lester G. Anderson and Arthur J. Gates, "The General Nature of Learning," Learning and Instruction, Forty-Ninth Yearbook of the National Society for the Study of Education (Chicago: University of Chicago Press, 1950), p. 26.

[31] Carter V. Good, Dictionary of Education (New York: McGraw-Hill Book Company, 1945), p. 222.

Student Achievement is designated as the learning that had taken place during the 18-week time interval (first semester of the 1973-74 school year) between the pre-test and the post-test.

Teacher Achievement is designated as the learning that had taken place during the three-week time interval (workshop on the career education cluster concept conducted during the summer of 1973) between the pre-test and the post-test.

Career Education Concept is difficult to define because there are nearly as many definitions as there are definers of it. However, most definitions include the following key concepts of career education: (1) Preparation for successful working careers shall be a key objective of all education, (2) Every teacher in every course that has career relevance will emphasize the contribution that subject matter can make to a successful career, (3) "Hands-on" occupationally oriented experiences will be utilized as a method of teaching and motivating the learning of abstract academic content, (4) Preparation for careers will encompass the mutual importance of work attitudes, human relations skills, orientation to the nature of the workaday world, exposure to alternative career choices, and the acquisition of actual job skills, (5) Learning will not be reserved for the classroom but learning environments for career education will also be identified in the home, the community, and employing establishments, (6) Beginning in early childhood and continuing through the regular school years, allowing the flexibility for a youth to leave for experience and return to school for further education, including opportunity for upgrading and continued refurbishing for adult workers and including productive use of leisure time and the retirement years, career education will seek to extend its time horizons without beginning and without end, and (7) Career education is a basic and pervasive approach to all education, but it in no way conflicts with other legitimate education objectives such as citizenship, culture, family responsibility, and basic education.

Career Awareness as used in this study refers to the process of assisting students to become aware of the work world, the activities of workers, their working conditions and the tools of their occupations, the amount of training required for their occupations and the remuneration which workers receive, and a study of the worker's vocational vocabulary. Stories of work situations coupled with the activities of workers in logical and illogical work settings were also used to broaden the student's career awareness.

Self Awareness refers to a state of being aware; a consciousness of one's self concept, without direct attention to it or a definite knowledge of its nature.

Career Education Cluster refers to any one of the 15 occupational fields. It includes occupations and their functions as they relate to the general economic or societal pursuits but do not require similar skills and knowledge. The 15 occupational clusters are as follows: Agri-business and Natural Resources, Business and Office, Communications and Media, Construction, Environmental Control, Health, Hospitality and Recreation, Manufacturing, Marketing and Distribution, Marine Science, Personal Services, Public Services, Transportation, Consumer and Homemaking, and Fine Arts and Humanities.

Experimental Approach (Method A) refers to the approach to teaching selected career education concepts by teachers who had received a three-week orientation to the career cluster concept, who had written curriculum oriented to the cluster concept, and who taught the curriculum during the first semester of the 1973-74 school year.

Experimental Approach (Method B) refers to the teaching of selected career education concepts by teachers who had received a three-hour orientation to the career cluster concept, who had not written curriculum oriented to the cluster concept, but who taught the curriculum which had been developed by their colleagues in Experimental Approach Method A, during the first semester of the 1973-74 school year.

Traditional Approach (Method C) refers to the conventional approach to teaching fourth and fifth grade elementary school students. The teachers were encouraged to teach the concepts of career education but were given no assistance in securing career-oriented materials nor were they given access to the cluster-oriented career units which had been written by their colleagues in Experimental Approach Method A.

APPENDIX O

Literature and Research Related to Career Education

LITERATURE AND RESEARCH RELATED TO CAREER EDUCATION

A review of the literature and research provides considerable findings from which the hypotheses of this proposal were built. The literature suggests that career education should be integrated into the total educational system beginning in kindergarten and continuing through the post-secondary grades and beyond. It was Miller who wrote that "one of the most interesting educational phenomena in our time has been the growing interest in, and development of, programs in career education." Miller further stated that:

> Career development provides a highly relevant (perhaps the most relevant) organizational theme around which education can be unified. With this infusion of relevance, education not only takes on a new and exciting meaning for the learner, but also prepares him for rational decisions which will help make his economic life role one of personal choice, rather than chance.[1]

Bottoms contended that career development education includes several broad areas, among them: self-understanding in relation to work activities, career decision making and planning, and career preparation.[2]

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[1] Aaron J. Miller, "Career Education Tenets" (paper presented at the Sixth Annual National Vocational and Technical Teacher Education Seminar, October, 1972, Columbus, Ohio).

[2] Gene Bottoms, "Some Basic Principles of Career Development Education," Contemporary Concepts in Vocational Education, The First Yearbook, ed. Gordon F. Law (Washington: American Vocational Association, 1972), pp. 203-235.

Gysbers and Moore pointed out that career education, in broad terms, encompasses those structured programs and activities in home, school, and community which help shape an individual's career decision and development.[3]

Gysbers and Moore further stated that:

> Relating the school and its curriculum to the outside world is a necessary first step in establishing career education in a school system. Instead of talking about the outside world in the abstract, the outside world can be used as a major behicle for instruction. Teachers can use the medium for transmitting basic education knowledge and skills.[4]

Taylor pointed out that the need for career education has been established by the magnitude and intensity of the problems currently faced by society and the educational profession in preparing individuals to become effective, contributing members of society.[5]

Goldhammer and Taylor stated that:

> Designed for all students, career education should be viewed as lifelong and pervasive, permeating the entire school program and even extending beyond it.[6]

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[3] Norman Gysbers and Earl Moore, "Guiding Career Exploration, Any Teacher Can," Instructor, 81:52, February, 1972.

[4] Norman Gysbers and Earl Moore, "Career Development: The Key to Relevancy in Education," (paper presented at the ASCD 27th Annual Conference, March 5-8, 1972, Philadelphia, Pennsylvania).

[5] Robert E. Taylor, "Perspectives on Career Education," (paper presented at the meeting of the Oregon Association of School Administrators, Oregon State University, March 30, 1972, Corvallis, Oregon).

[6] Keith Goldhammer and Robert Taylor, Career Education: Perspective and Promise (Columbus, Ohio: Charles E. Merrill Publishing Company, 1972), p. 6.

Bottoms contended that career education must be comprised of increasingly varied objectives and instructional activities that occur from kindergarten through postsecondary grades and adult levels.[7]

Deiulio and Young state that, "Career education should begin in the elementary school because it enhances a child's self-concept and lays the groundwork for directly identifying with occupations later in high school."[8]

Hoyt contended that career education should be viewed as a concept to be integrated into the total educational system.[9] Goldhammer and Taylor regard career education as a systematic attempt to increase the career options available to individuals and to facilitate more rational and valid career planning and preparation.[10]

Drier reported the results of a two-week workshop attended by a thirty-five member statewide committee of administrators, teachers, and counselors who cooperated to develop a career development guide for Wisconsin. An opinionnaire was constructed to find out if the inservice experience would significantly change educators' understanding and attitudes about career development.[11] Drier reported that the committee members significantly changed their attitudes as follows:

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[7] Gene Bottoms, Career Development Education: Kindergarten Through Post-Secondary and Adult Levels, (Atlanta: Georgia Department of Education, 1971), p. 11.

[8] Anthony M. Deiulio and James M. Young, "Career Education in the Elementary School," Phi Delta Kappan, 44:380, February, 1973.

[9] Kenneth B. Hoyt and others, Career Education: What It Is and How to Do It, (Salt Lake City: Olympus Publishing Company, 1972), p. 136.

[10] Goldhammer and Taylor, loc. cit.

> Career development was seen as necessary in the primary grades, an opinion contrary to their pre-workshop attitudes. . . Staff members unanimously felt that a system had to be employed which demanded that career development be implemented as a process. Prior to the workshop, career development had been viewed as a variety of unrelated programs.[12]

Mitchell reported that there was an apparent difference in the perceptions of public school educators concerning the importance of career orientation activities per se, the level of knowledge and basic skills acquired by elementary students, and the value of advisory groups in planning more effective classroom activities. It was concluded that terms such as pre-vocational, skill and job often produce a negative attitude among teachers and administrators.[13]

J. S. Altman[14] proposed a comprehensive structure showing the needed occupational information based on a continuum which reaches backward in time from a skilled worker on the job toward the cradle. There is further support of early student involvement, guides to program content and process in the report from the State University of New York.[15] Akamine and Hiemer's report of the Washington State Coordination Council for Occupational Information,[16] and C. A. Bugg's theories of career choice and related guidance services serve as an example.[17]

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[11] Harry N. Drier, Jr., "Career Development Activities Permeate Wisconsin Curriculum," American Vocational Journal, 47:39-41, March, 1972.

[12] Ibid, p. 40.

[13] Donald Leland Mitchell, "A Study of Attitudes, Interests, and Current Practices Related to Career Orientation Activities in the Elementary School in Oklahoma," (unpublished Doctor's dissertation, Oklahoma State University, 1971), pp. 1-97.

[14] J. S. Altman, What Kinds of Occupational Information Do Students Need, (Ed 018 580 MF HC-.65, 11 pp.) 1966.

In a large urban educational setting, program objectives and plans must attend to the unique needs of the disadvantaged, inner-city as well as young people with other exceptional characteristics. Jefferies turned his attention to the inner-city child. He concluded that, "The inner-city child lives in an environment which creates a low self-concept thus lowering his level of aspiration and career development and perpetuating his self-defeating mode of living. Schools," he says, "must assist in career development to break this cycle."[18]

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[15] A Demonstration System of Occupational Information for Career Guidance. Final Report. State University of New York, Albany, 1968.

[16] T. Akamine and H. G. Hiemer, Development of an Experimental Forced-Choice Occupational Reference Inventory. Report No. 23. Final Report, BR-70031. Washington State Coordinating Council for Occupational Information, Olympia, 1968.

[17] C. A. Bugg, "Implications of Some Major Theories of Career Choice for Elementary School Guidance Programs." Elementary School Guidance and Counseling, 1969 3(3), pp. 164-173.

[18] D. Jefferies, "The Needs of Inner-City Children for Career Guidance." Elementary School Guidance and Counseling, 1968 2(4), pp. 268-275.

In a documented research project, "Needed Concepts in Elementary Guidance," by Tom Warner,[19] nine points are given as to the value of opening new vistas to children through career exploration and information: (1) exploring careers helps children develop a personal sense of present and future worth, (2) exploring careers helps children develop a feeling of place in their society, (3) exploring careers helps children see how adults achieve the place they have, (4) exploring careers injects the elementary school into a meaningful on-going process, (5) exploring careers helps children see the value and significance of all honest work, (6) exploring careers helps children develop enthusiasm about the whole prospect of work as a way of life, (7) exploring careers helps counteract the physical and psychological absenteeism of male working models upon attitudes toward work, (8) exploring careers helps children develop a concept of life as a reality extending through several inter-related and interdependent phases, and (9) exploring careers with elementary school children is consistent with good learning theory.

This concern for providing planned assistance for these "special" youths is supported by studies conducted at Ohio State University,[20] and by E. A. Whitfield who strongly emphasized that "to provide integrated vocational guidance in the elementary schools will require the elementary school teachers and counselors . . . a thorough knowledge of vocational and child development . . . understanding of the elementary school curriculum and its relations to careers . . ."[21]

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[19] Tom Warner, Educational Need Concepts in Elementary Guidance. Ohio State Department of Education, Columbus, Division of Guidance and Testing, January, 1969, p. 32.

[20] Ramsey M. Groves, "A National Survey of Vocational Programs for Students with Special Needs." C.T.R. Vocational and Technical Education, Ohio State University, Columbus, May, 1966.

Our youth will need a program that will provide a wide range of vicarious and practical experiences, which may take the form of simulation games, instructional materials, and practicums that lead into understandings of self in relationship to occupational role expectations. Review of the citation below gives us many cues to objectives and processes. Darcy[22] in 1968 at Ohio State University conducted an experimental project designed to develop usable instructional materials, evaluation instruments, and a realistic classroom educational program for bridging the gap between school and the world of work.

A large number of studies have been conducted which reveal that more attention and understanding are emerging in the field of career development education in grades K-12. G. E. Leonard[23] conducted a project at Wayne State

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[21] E. A. Whitfield, "Vocational Guidance in the Elementary School: Integration or Fragmentation?" *The School Counselor*, 1968, 16(2), pp. 90-93.

[22] R. L. Darcy, *An Experimental Junior High School Course in Occupational Opportunities and Labor Market Processes*. Final Report. BR-5-1203. Ohio State University, Athens, 1968. (ED 022 056 MF-2.25 HC-30, 68 611 pp.).

[23] G. E. Leonard, *Developmental Career Guidance in Action, The First Year*. Wayne State University, Detroit. (Ed 013 465 MF-.75 HC-8.00 115 pp.).

University with objectives to: (1) broaden and raise the educational-occupational levels of aspiration of a selected group of Detroit inner-city public school students, (2) develop a pilot program to better meet their needs through emphasis on developmental educational-occupational career guidance in grades one through twelve, (3) to involve the staff of the participating schools in the program through cooperative planning and development.

In a study by Leroy C. Olsen and William H. Venence,[24] "Development of a Prospective Technique for Obtaining Educationally Useful Information Indicating Pupils Attitudes Toward Work and Occupational Plans," it was suggested that more knowledge of occupations and one's abilities and aptitudes are necessary for adequate occupation choice-making decisions.

Allport[25] notes that an attitude is a mental and neutral state of readiness organized through experience exerting a directive and/or dynamic influence upon the individual response to all objects and situations with which it is related. The person's concept may be thought of as essentially the sum total of the attitudes and values by which he lives.

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[24] Leroy C. Olsen and William H. Venence, Development of a Projective Technique for Obtaining Educationally Useful Information Indicating Pupils' Attitudes Toward Work and Occupational Plans. Report No. 21. Final Report, BR-70031, Washington State University, Pullman, 1968.

[25] G. W. Allport, "Attitudes," A Handbook of Social Psychology, Worchester, Clark University Press, 1935.

Bloom, Davis and Hess, as stated by Olsen and Venence,[26] indicate that if children learn that their basic needs cannot be adequately provided for in a dependable way, they tend to adopt a fatalistic attitude--defeatism and possibly hostility caused by need deprivation is learned by the child from both realities of living and from their parents who, through daily behavior communicate a general attitudinal orientation. This general attitude orientation can do much to give the child an outlook in which he expects to be frustrated in meeting his basic needs. This determines his views about himself and his environment. There is a need for adequate means of assessing pupils' attitudes toward various careers and ways these attitudes affect career choice.

Frank[27] reports that stimuli signifying elements of the world-of-work (e.g., task, unions, tools) may be more meaningful to pupils whose parents are engaged in unskilled and semi-skilled occupations.

On the assumption that the classroom, subject-matter teacher is a significant variable in student attitude toward work, the Rocky Mountain Education Laboratory, Inc., in Greeley, Colorado,[28] conducted a project to ascertain the

[26] Olsen and Venence, *op. cit*.

[27] G. H. Frank, "Biochemical Implications," *American Psychology*, 19:1, January, 1965, p. 54.

[28] *Occupational Education Program, Image of the World of Work Description and an Analysis of Teacher Orientation Activities*, (August, 1968). Rocky Mountain Education Laboratory, Inc., Greeley, Colorado, 1969. (Ed 029 933 MC-.50 HC-4.65 91 pp.).

relationship between changes in attitudes toward work of students and specified instructional practices of their Social Studies or Language Arts teachers. Supporting the notion that a broad-based community involvement can provide a positive educational tone and student-career-direction was reported by Margaret Mullen[29] from the Sequoia Union School District. She involved volunteers in a school-community, career-guidance program, and developed a handbook to be used by school administrators, teachers and counselors, as a guide for the effective utilization of these community resources.

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[29] Margaret J. Mullen, A Volunteer Program in Vocational Information and Career Guidance for Secondary Schools, A Handbook. Sequoia Union High School, Redwood City, California, 1968. (MD 024 809 MC-.75 HC-7.40 146 pp.).

IN-SERVICE EDUCATION MODEL FOR THE DISSEMINATION AND UTILIZATION OF SELECTED CAREER EDUCATION CONCEPTS PRESENTED BY THE CAREER CLUSTER APPROACH IN THE ELEMENTARY SCHOOL

ABSTRACT

PURPOSE: The primary purpose of the investigation was to ascertain the relative effect that an elementary school curriculum, organized around career education clusters, would have upon student achievement of selected career education concepts. Of secondary importance to the study was an attempt to ascertain the relative effect that a workshop, organized around the career education cluster concept, would have upon teacher achievement of selected career awareness concepts.

METHOD OF RESEARCH: This study was conducted as an experimental comparison of methods used to teach fourth and fifth grade students selected career education concepts. The study consisted of two experimental treatments (Methods A and B) and a conventional treatment (Method C). Method A, an experimental approach, refers to the approach to teaching selected career education concepts by teachers who had received a three-week orientation to the career cluster concept, who had written curriculum oriented to the cluster concept over an additional three-week period, and who taught the curriculum during the first semester of the 1973-74 school year. Method B,

also an experimental approach, refers to the teaching of selected career education concepts by teachers who had received a three-hour orientation to the career cluster concept, who had not written curriculum oriented to the career cluster concept, but who taught the curriculum which had been developed by their colleagues in Experimental Approach Method A, during the first semester of the 1973-75 school year. Method C, the traditional approach, refers to the conventional approach to teaching fourth and fifth grade elementary school students. The teachers were encouraged to teach the concepts of career education but were given no assistance in securing career-oriented materials nor were they given access to the cluster-oriented career units which had been written by their colleagues in Experimental Approach Method A.

The study was conducted in three elementary schools of the Fort Osage Public School District R-1, Independence, Missouri. The measures used in this study were taken from a random sample of 150 fourth and 150 fifth grade students. Twenty elementary teachers, ten at each of the two grade levels, were involved in the study.

The research procedure followed in the study was to administer a pre-test, apply the three treatments over the eighteen-week first semester time interval, and then ascertain achievement by administering a post-test. Standardized instruments were used to assess all measures of student achievement while a researcher-developed objective instrument was utilized to assess teacher achievement.

CONCLUSIONS: Since the achievement scores of students in Groups A and B were significantly higher on selected career awareness concepts (in seven out of seven cases for Group A and in four out of seven cases for Group B) than student achievement scores of students in Group C, it may be concluded than the career cluster concept is an effective method of presenting selected career awareness concepts to fourth and fifth grade students.

Because the achievement scores of students in Groups A and B were significantly higher on selected self awareness concepts (in one out of two cases for Group A and in two out of two cases for Group B) than the student achievement scores of their counterparts in Group C, it may be concluded that the career cluster concept is an effective method of presenting selected self awareness concepts to fourth and fifth grade students.

Due to the fact that the achievement scores of students experiencing the three treatments did not differ significantly on selected career decision making skills, it was concluded that, with regard to achievement of career decision making skills, the study failed to reveal a single most effective approach to teaching the concept to fourth and fifth grade students.

Students who experienced Treatments A and B made significantly higher gains in student achievement of career awareness and self awareness than did their counterparts who experienced Treatment C. It was therefore concluded that, with regard to the achievement of career awareness and self awareness, an effective method of presenting these concepts to fourth and fifth grade students was identified.

Since the achievement scores of students in Group A were significantly higher on selected career awareness concepts (in two out of seven cases) from the achievement scores of students who experienced the career cluster concept from teachers who have received an extensive orientation to career education and who have written the units of curricular instruction based on the career cluster concept can be expected to show slightly higher gains on selected career awareness concepts than students who are taught by teachers who have received little orientation to career education and who did not write the units of curricular instruction based on the career cluster concept.

Due to the fact that the achievement scores of students who experienced Treatments A and B did not differ significantly on selected self awareness concepts, it was concluded that, regardless of the experimental treatment used, students in Group A will not be expected to experience greater gains in self awareness than their counterparts in Group B.

Since the results of this study, based on student achievement scores, indicate that students who experienced units of curricular instruction based on the career cluster concept made significantly higher gains in selected career awareness and self awareness, this approach, as presented in this investigation, is judged to be a most effective method for presenting these concepts to fourth and fifth grade students.

Because the results of this study, based on student achievement scores, indicate that the students in Group A made slightly significant higher gains or were statistically equal to students in Group B on the two selected career education concepts presented where significant differences were found, this approach, as presented in this investigation, is judged to be the most effective method of the three treatments studied.